



# Towards an Understanding of Eco-Justice and its Related Principles and Interventions that can Advance Environmental Justice

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## Abstract

Deep ecology considers the ecosystem as a living whole with humanity only one part of this whole (O'Donnell, 2015). There is growing concern regarding environmental problems that are challenging human and environmental well-being. Current social, health and environmental damage warrants the consideration of eco-justice as a paradigm that can potentially advance environmental preservation. Drawing on in-depth interviews and focus group discussions, with Health Science academics and students at a University of Technology in KwaZulu-Natal, this study sought to inquire how they understand eco-justice, the principles underpinning eco-justice and what eco-justice projects could be initiated amongst tertiary students to preserve the environment. Eco-justice was found to relate to the need to care for and preserve ecosystems, by reducing over-consumption and the overuse of natural resources. Of significance was that participants supported the need for projects related to cleaning the oceans, planting trees and crops and recycling to advance the eco-justice mandate.

**Keywords:** *eco-justice, academics, students, health, South Africa*

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## Introduction

According to Brown (2017), the roots of the word 'eco' lie in the Latin word 'oikos' which refers to a home. A home comprises various relationships with people, creatures, ecosystems, economy, environment, food, water, air, and the rules facilitating the social, cultural, spiritual and emotional well-being of all in this home. It is in this context that Murphy (2014) and Costanza (2012) wrote that eco-justice seeks to preserve and enhance the ecological well-being and the integrity of the Earth. The latter refers to the properties of the Earth that sustain all forms of life, including human life (Costanza, 2012). These represent the natural systems (water, air, soil, forests, oceans, etc.) as well as intergenerational knowledge that includes growing and preparing food, medicinal practices, arts and ceremonies shared freely by all communities (Bowers, 2009). Bowers (2009), the pioneer of eco-justice, argued that society must work towards preserving the integrity of the environment, saying that unjust social suffering and environmental degradation must

be eradicated. Social suffering and environmental degradation are inextricably linked as society depends on the environment for natural resources such as fresh water, food security and a comfortable climate (Lupinacci, 2017). Paige et al. (2018) added that it was important that future generations are not depleted by the current environmental destruction and that non-human forms of life are also acknowledged as having rights within the larger ecosystems, of which we are all a part. Within the literature therefore, a central theme of eco-justice is socio-economic and environmental conservation (Paige et al., 2018).

Since humans depend on the natural environment and the services provided by the ecosystem, the human dimensions of the environment must also be considered when discussing conservation and eco-justice (Brown, 2017). Ecosystem services can be used in either a consumptive and/or non-consumptive manner and can provide humans with subsistence and/or commercial benefits (Brown, 2017). The dynamic and complex components involved in conserving ecosystems are influenced by equally dynamic and complex human activities (Barnard, 2012). In this complex web of interrelationships, where all species are dependent upon each other, this organic pattern must be sustained (O'Donnell, 2015).

The United Nations has highlighted the importance of ecosystem services and the need to support provisioning, regulating, cultural and supporting services (Washington et al., 2018). This includes providing food and water and regulating the climate, as well as cultural aspects such as reducing stress and anxiety (Washington et al., 2018).

Although there is little focus on eco-justice in South Africa, it is included in the Constitution of the country (Hattingh, 2013; Preece, 2013). The Constitution states that everyone has a right to the following: an environment that is not harmful to his or her health or well-being, an environment protected for the benefit of present and future generations, through reasonable legislative measures that would prevent pollution, ecological degradation and would promote conservation and secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development (Hattingh, 2013).

The world is constantly confronted with complex challenges such as water shortages, climate change, global food security and social inequality. As part of the response to these challenges, Dostilio and Welch (2018) posited that higher education plays a critical role in addressing these challenges and university-community engagement should be encouraged.

The White Paper on the Transformation of Higher Education (Department of Education, 1997) committed universities to policies and programmes for community development, as part of the universities' mandate. Beere et al. (2011) posited that engaging with communities has the following positive benefits for higher education institutions: it helps university faculties to remain relevant and to keep content up to date; it keeps faculties aware of the relationship between what they are teaching and the real world; it provides powerful examples to discuss in the classroom; it provides novel research ideas as well as contributes participants and research sites; and it provides consulting opportunities. The community also benefits from projects and programmes initiated by community engagement (Beere et

al., 2011). In particular, eco-justice projects have tremendous potential for communities and students to learn more about eco-justice principles and become better empowered to take on eco-justice issues. Universities should institutionalise the notion of community engagement, which should become sustainable, and intensified. Community engagement can be useful for environmental education because it makes communities feel responsible and empowered to take action, towards their vision for a better community, by raising their awareness of critical environmental issues (Assadourian, 2017). Butin (2012) supported this notion, adding that such changes that have taken place in higher education worldwide over the past few years can be referred to as a revolution and should be intensified. The emergence of a knowledgeable society as outlined by Jowi (2012) is a major development for all societies and universities.

## **Bowers theory on eco-justice as a theoretical framework**

Bowers (2006) noted that the globalisation of the western techno-scientific-industrial culture is accelerating the rate of change in three areas that affect the quality of life on this planet: (1) the loss of linguistic /cultural diversity that plays a role in maintaining biodiversity; (2) the loss of intergenerational knowledge that represents cultural alternatives, with a move towards a consumer dependent lifestyle; and (3) the degradation of potable water, topsoil, fisheries, climate change, and spread of toxic waste. He cautioned that these changes are progressing on a scale that makes it impossible for billions of people around the world to escape the rampage of disease and poverty.

For this reason, Bowers (2006) proposed a shift from the term 'environmental education', to 'commons education' or 'educating for commons' which equates to eco-justice. The commons, he said, represent the natural systems (water, air, soil, forests, oceans, etc.) and the cultural pattern and traditions (intergenerational knowledge ranging from the growing and preparation of food, indigenous medicinal practices, art, craft, ceremonies etc). Bowers (2006) cautioned that disregard of the commons will negatively impact on the present generation and generations to come. He argued for the revitalisation of the commons which would involve taking democratic responsibility for the quality of air, water, soil, plants, animals and all other aspects of the spaces that we share and depend upon.

With Bowers as a backdrop, Cock (2021) cautioned that we need to bring together environmental justice in order to build an eco-socialist future for South Africa. This needs strong leadership and solidarity where there is appreciation for cooking one's own meals from a well sustained garden and a reduction in the need for material goods that only satisfy one's own ego and produce little for our society as a whole (Cock, 2021). Given the paucity of literature on eco-justice in South Africa, this study sought to explore how academics and students at a University of Technology understand eco-justice, its related principles and what eco-justice initiatives could steer eco-justice. This could create a pathway towards preventing the ecological collapse in South Africa and ensuring food security while maintaining justice for the environment. Based on the principles of Bowers

theory (2006, 2009), this study can guide academic, students and communities towards promoting environmental justice.

## Literature review

White (2013) defined eco-justice as the principle of being fair or equitable with regard to ecological sustainability and the protection of the natural environment, as well as showing respect for social issues. Scholars have argued that humans depend on the natural environment and the services provided by the ecosystem for survival (Brown, 2017, O'Donnell, 2015). Hence consideration must also be given to humankind which forms part of the environment, within a broader consideration of eco-justice (Vaughan-Lee & Hart, 2017).

The 2001 United Nations Annual report on environmental change argued that over a short course of history, humans have altered the balance of nature, changed the world's climate, and threatened the sustainability of Earth itself (Hawkins, 2010). The report concluded that the greatest challenge of the 21st century is to address the resultant ecological calamity caused by humans before the very environment that sustains humankind is destroyed (Hawkins, 2010). Studies have found that the changing climate has had significant effects on human health (McIver et al., 2016). Climate sensitive health risks which were uncovered included trauma from extreme weather events, heat-related illnesses, the compromised safety and security of water and food, vector-borne diseases, zoonoses, respiratory illnesses, psychosocial ill-health, non-communicable diseases, population pressures, and health system deficiencies (McIver et al., 2016). It is against this backdrop that the World Health Organisation (WHO) conducted an international climate change risk assessment (CCRA), to estimate future climate change attributable health effects and future annual mortality rates (WHO, 2014). The following health models were used: coastal flooding mortality, diarrhoeal diseases, malaria, dengue fever and undernutrition. The impact on health was projected for the years from the 2030s to 2050s, under various climate change scenarios and compared to the time periods 1961 to 1990 (WHO, 2014). This inquiry found that climate change is projected to have substantial adverse effects on human health, with an estimated 250 000 more deaths annually, due to climate change between 2030 to 2050. The most substantial impact was projected to be caused by undernutrition and infectious diseases due to climate change and food shortages (Campbell-Lendrum et al., 2015).

The World Health Organisation has projected that climate change will negatively affect future generations (WHO, 2014). Additional deaths are projected for the year 2030 resulting in 38 000 due to heat exposure in the elderly, 48 000 due to diarrhoea, 60 000 due to malaria and 95 000 due to undernutrition in children (WHO, 2014). By 2050, deaths related to heat exposure (over 100 000 per year) have been projected to increase (WHO, 2014). The results are envisaged to be greater in lower socio-economic countries with sub-Saharan Africa projected to have the greatest burden of mortality impact, attributed to climate change by 2030 (WHO, 2014). Such environmental damage benefits the global north and elite groups within South Africa who mass produce at the expense of the environment

and poorer communities (WHO, 2014). These results have implications for the linkages between climate, health, sustainable development objectives and justice (WHO, 2014).

Schewe et al. (2014) found that daily living is influenced by certain prerequisites, such as adequate water and food for human health and survival. This requires that a sufficient amount of water must be drawn from rivers, lakes, and groundwater aquifers daily (Schewe et al., 2014). Waldron (2016) noted that freshwater is a vital natural resource that humans need for health, drinking, sanitation and agriculture. Schewe et al. (2014) cautioned that modest global warming has the potential to lead to a severe reduction in water by about 8% to 17% of the global population. They added that this, combined with population growth, would expose a significant amount of the world population to chronic or absolute water scarcity (Schewe et al., 2014).

Marais (2017) has argued that South Africa is experiencing the worst water crisis in decades. This is evidence of the planet's water scarcity and its effect on human health and well-being (Marais, 2017). The notion of "water of life" as regarded by many churches and other religious communities shows concern by faith-based communities on the effects of the scarcity of water on human health and well-being (Marais, 2017, p. 77). In recent years, the effect of the national water crisis was critical in Cape Town, with water restrictions reaching level four, in an attempt to prevent the taps from running dry. Consequently, the water crisis was declared a national disaster (Marais, 2017). This, together with poverty, escalating mobility and high mortality in South Africa requires academic institutions, communities and religious institutions to work towards saving the environments that sustain life and addressing environment challenges (Marais, 2017).

Additional water is needed for agricultural irrigation and industrial use for hydropower and the cooling of thermoelectric power plants (Schewe et al., 2014). These activities are dependent on a sufficient amount of freshwater from rivers, lakes, and groundwater aquifers. Schewe et al. (2014) further stated that freshwater is a vital natural resource and human beings require clean water for daily living and this basic need is being threatened. They cautioned that the expected global population growth over the next decades and the growing economy will increase water demand and therefore aggravate water shortages.

Dostilio and Welch (2018, p.177) posited that higher education plays a critical role in addressing complex challenges like water shortages (as discussed above), climate change, global food security and social inequality. University-community engagement involving a diversity of thought, experience and knowledge is needed. Community engagement efforts have been part of higher education since 1914 and community engagement initiatives have slowly begun increasing since the 1980s. Institutionalising community engagement and providing high quality support to faculty and students to engage with community partners remains a challenge, however, that must be urgently addressed (Dostilio & Welch, 2018).

According to Brown (2017), the increased burdens associated with climate change add to the complexity of eco-justice. Similarly Portier et al. (2010) noted that future generations could not live quality lives without understanding their place as part of the natural world, and without caring for the earth, which sustains and governs existence.

Progress and existence which considers the health and well-being of earth, humans, and future generations is key (Brown, 2017).

## **Methodology**

### **Study design**

A qualitative research approach with an exploratory research design was used to guide this study. According to Polit and Beck (2012), qualitative research places the researcher in a real world context by focussing on the whole human experience, and the meanings ascribed by individuals to such experiences. The study was undertaken at a University of Technology in the province of KwaZulu-Natal in South Africa. Samples were taken from academics and students in the Faculty of Health Sciences. Data was collected from the academics using semi-structured interviews. Due to the large number of students, two focus group discussions were used to collect data from students. This allowed for the input of a large number of students collectively.

### **Sample**

Participants were recruited using non-probability purposive sampling, which involves the selection of individuals or groups of individuals that have experience and knowledge regarding a particular area of interest (Polit & Beck, 2012). The two samples were purposefully chosen from the Departments of Nursing, Environmental Health and Homeopathy because of their extensive engagement in community sites related to eco-justice. A total of 14 academics (professors and lecturers) and 24 students ultimately participated in the study. All participants had a good understanding of English and could be considered a cross-section representing the demographics within South Africa. The academics were of a mature age while students were in their twenties. Data collection stopped after no new information was noted, indicating that data saturation was reached. Academics were identified as 'A', followed by the corresponding interview number e.g. (A1). Students were identified as 'S' followed by the number of the participant and the focus group discussion number e.g. S3 FGD1. Given that there were two focus groups, they were identified as FGD1 or FGD2.

### **Ethical considerations**

KwaZulu-Natal Province in South Africa has seen major declines in manufacturing and agro-industrial employment. Transportation has become relatively more important as a result with the province home to the country's two largest ports. As befits a maritime province, marine resources sustain much economic activity, both through the ports and tourism. However, this is undermined by a history of problematic settlement patterns, poor land management and ineffective regulation that has generated large areas of environmental distress, undermining the potential economic benefits of the maritime economy.

## **Data collection**

Data was collected between October 2018 and March 2019. Fourteen academics were interviewed and a total of 10 and 14 undergraduate students were included in two group discussions. Questions focussed on how participants conceptualised eco-justice, their understanding of the principles underpinning eco-justice and what eco-justice interventions could be implemented in communities within KwaZulu-Natal. The scope of the interviews included how eco-justice could be initiated and sustained with local communities of KwaZulu-Natal.

## **Data analysis**

The six phases of thematic data analysis, as described by Braun and Clarke (in Javadi & Zarea, 2016), were used to guide the analysis, as outlined below.

### ***Phase 1: Familiarisation with the data***

Data obtained was digitally recorded and transcribed verbatim. All the interviews and group discussions were transcribed.

### ***Phase 2: Coding***

Succinct codes/labels were developed to identify important features of the data relevant to answering the research questions. Thereafter all data was collated and relevant data extracted. The data was then organised into significant groups and given labels.

### ***Phase 3: Searching for themes***

During this phase the researcher examined the groupings and collated the data to identify significant broader patterns of meaning (potential themes). Data relevant to each theme was collated, so that the researcher could review the viability of each theme (Javadi & Zarea, 2016). The researcher in this study identified themes related to community engagement and eco-justice from the codes/labels. Similar labels were brought together in a set. Similar emerging themes were grouped and categorised according to the content they represented. A title was given to each set and a concise explanation for the name of the set was noted by the researcher.

### ***Phase 4: Reviewing themes***

This phase involved checking the themes against the data to determine whether the data reflected a correct narrative of the data, and whether the themes answered the research questions (Javadi & Zarea, 2016). In this study, the researcher went back to the extracted codes/labels of each theme and noted whether these codes/labels formed a consistent pattern. The validity of themes, in relation to the entire data set was checked.

### ***Phase 5: Defining and naming themes***

This phase involved developing a detailed analysis for each theme by determining the focus of each theme and finalising each theme (Javadi & Zarea, 2016). The researcher in this study summarised the scope and contents of each theme. The researcher then gave each theme a clear and accurate name which would enable the reader to identify the theme at a glance.

### ***Phase 6: Writing up***

In this final phase, the researcher weaves together the data extracts, and finally contextualises the analysis in relation to the existing literature (Javadi & Zarea, 2016). In addition, data from the state-of-the-art literature review on eco-justice was used. This included best practices on eco-justice obtained from international and national literature, principles of eco-justice as well as community engagement strategies.

## **Discussion of findings**

In analysing the data, it was found that both academics and students had similar concepts of eco-justice. Three themes and nine sub-themes emerged from the data.

### **Theme 1: Conceptualising eco-justice**

Most participants (academics and students) said that eco-justice was a new concept to them. They were only able to conceptualise eco-justice by separating the words 'eco' and 'justice'. Participants conceptualised eco-justice as:

#### ***Sub-theme 1: Caring for the environment***

Most participants agreed that eco-justice had to do with caring for the environment, being "ecofriendly" and being responsible for preserving the planet. They said:

"I think when you speak about eco, it comes to mind as eco-friendly, where we are called to take care of the environment; flora fauna, the atmosphere, pollution; those kinds of things."  
(A11)

"Saving the planet, it is about saving the environment. Each person should be responsible for the environment". (A1)

"We are talking about caring and preserving the environment." (S9 FGD1)

Gray and Coates (2015) concurred with these views saying that in order to preserve the natural environment, humankind needs to care for the environment and understand that eco-justice and transformative change is crucial in addressing the impacts of the global environment crisis. Environmental activists have cautioned governments against the over-emphasis of economic development, at the cost of broader issues such as global poverty, social justice and the depletion of the natural environment (Boetto, 2017).

### ***Sub-theme 2: Being fair and maintaining the rights of the environment***

Participants expressed that eco-justice was about protecting the rights of all in the ecosystem, including animals, marine life and nature, all of which are voiceless to protect themselves. They argued that all living and non-living entities had rights and that humankind should be considerate to all, to ensure peaceful co-existence. They said:

“I think eco-justice encompasses the rights of the environment. Who speaks for the environment ... I mean nature, the oceans and marine life, birds, animals because we are starting to see that it is us as in humans against the world.” (A3)

“Equality of all resources to every living being on earth. Treating all living things fairly.” (S20 FGD2)

“I think it’s about being gentle to the environment/nature, and also being considerate so that we can live together without harming ... we need these things in terms of our daily lives.” (A6)

One student expressed that eco-justice was crucial to conserving natural resources:

“Eco-justice is being fair, to protect the natural environment. Conservation of natural resources, for our future.” (S12 FGD2)

Scholars such as Heydon (2018) and Adekunle (2017) have also argued that eco-justice is underpinned by a quest for fair and just treatment at two interrelated levels: fair treatment of people and fair treatment of the environment. Adekunle (2017) added that for humankind to enjoy the basic necessities of life, an enabling environment is required and hence what is fair for the environment is that people protect the environment and keep it safe, so it can be sustained for the next generation.

### ***Sub-theme 3: Maintaining harmony with the environment***

Participants described this sub-theme as follows:

“Eco-justice for me is balance in nature. I will be doing justice to nature for our world and also because I think if we destroy the environment, if we do injustice to the environment, if we don’t take care of the environment, the consequences in the future will be very bad.” (A2)

“Eco-justice for us we believe there must be balance in symbiotic relationships where you know you’re not growing or developing at the expense of another. I think it’s basically a humanitarian principle, but love must be reciprocated; you can’t be pouring into others and there’s no reciprocation.” (A5)

### ***Sub-theme 4: Eco-spirituality***

Academics described eco-justice as embodying spirituality; they felt that all of creation is a gift from God that should be respected and preserved for future generations.

“Caring for the environment is ultimately a spiritual act. We believe it enriches us, it raises our awareness. It’s God’s work.” (A9)

“You will get to know more about the Brahma Kumaries World Spiritual University. Their vision of a society that is equal, peaceful and sees nature as Godly. A society free from any abuse, or indifferences towards any and all of God’s creation.” (A 6)

The interconnection between eco-justice and spirituality is further reflected in an environmental publication by Pope Francis, ‘On Care for Our Common Home’, which brought to light the pervasive and escalating destruction of the environment, and the blatant disrespect humanity has displayed towards the natural earth and its life forms. The Pope reflected on current environmental issues such as pollution, climate change, water shortages, biodiversity loss, and global inequality, to explain the causes of the overall decline in the quality of human life (O’Donnell, 2015).

## **Theme 2: Principles underpinning eco-justice**

### ***Sub-theme 1: Showing respect for natural environment***

Participants emphasised respect for the natural environment, which includes plants, water, animals and marine life, all of which collectively constitutes the cultural commons as follows:

“We must show respect. This involves respecting the natural environment; plants, water, animals and marine life, which make up the cultural commons that will serve as sustenance.” (A6)

“Respect for the environment ... prevention of pollution and protection of the ozone layer because we need it.” (A11)

The need for respect was also supported by Adekunle (2017) who said this was necessary for sustainable development and the survival of all Earth’s species. He added that humankind should therefore realise that the Earth’s natural resources are not limitless resources and that human health and well-being would ultimately suffer if the Earth could not supply the sustenance needed for survival (Adekunle, 2017).

### ***Sub-theme 2: Fairness towards the ecosystems***

Participants stated that fairness emerged as another important principle of eco-justice that would ensure that natural resources were available for future generations.

“It is about being fair to the environment in terms of resources we use; and being fair and modest in terms of what we use and how we use it, and also not to ruin the environment, in a greater scheme of things with regards to global warming and other environmental crisis that is going on globally.” (A2)

“Treating the environment fairly and ensuring that resources are not widely used and not wasted, depending on the environment; plants, land, animals, sea creatures.” (S13 FGD2)

Failure to protect the environment can deplete resources for generations of humans and non-humans to come (Washington et al., 2018). Adekunle (2017) further argued that when land, water and air are indiscriminately treated, not only wildlife suffers, but also human life. He said that deforestation of vast areas of land, droughts, pollution and industrialisation in the name of human progress has led to incalculable damage and depletion of natural resources that could sustain human health and well-being.

Furthermore, there is a dearth of adequate attention to eco-justice by South African universities and communities (Hill, 2016; Jacob et al., 2015; Paige et al., 2018). Academics and students who participated in this study stated that there is a limited understanding of eco-justice and its relevance to communities and health, as well as of sustainability. Lack of attention to eco issues has led to the benefit of the elite industrialists at the expense of society as a whole (Jacob et al., 2015).

### ***Sub-theme 3: Upholding an ethic of care for the environment***

An ethic of care emerged as the third principle as follows:

“People don’t have the will to look after the environment ... it’s not up to me. It’s someone else’s job and that’s the attitude that actually needs to change.” (A1)

A personal ethics of care is crucial to ensuring a change in the notion that the environment is not only a collective responsibility, but is also a personal one. In this vein, Kulnieks et al. (2013) argued that environmental education should inspire communities, academics and students to develop an ethics of care and stewardship for their environment, so that there could be a deeper consideration of the environment in which they live.

### ***Sub-theme 4: Preserving the ecosystem***

Participants said:

“In the long run we might need the same plant and the same environment only to find out it is no longer there.” (A6)

“Eco-justice means the act of using the things in the ecosystem in a sustainable manner so that they can be used in future.” (S24 FGD2)

“Community people are not even concerned at all or don’t even have a knowledge of the importance of preserving the environment, because it is a perishable resource. If it is not replenished through simple things that manage the environment better; recycling of basic commodities, not littering or understanding if you do plant, what kind of crops to plant, management of animals, without necessarily killing them.” (A5)

Participants expressed that human beings have been contributing to pollution, damage to the ozone layer, extinction of animal and plant life and toxicity of oceans, atmosphere and soil erosion. They believed that it was important to preserve the environment by desisting from pollution. Taylor et al. (2019) argued for a drastic reduction in carbon emissions which

have the potential to cause asphyxia, in order to create a 50% reduction by 2030 and avoid devastating droughts, floods, extreme heatwaves and poverty. Adekunle (2017) added that African communities need to be aware of the impact on the environment of, for example, intensive use of water resources for industrialisation and intensive use of energy which is needed to power heavy farm machines or produce nitrogen based synthetic fertilisers, manufacture pesticides and transport food over long distances in order to preserve the environment.

### **Theme 3: Eco-justice projects**

Responses for projects were predominantly received from academics. Participants identified the following eco-justice projects:

#### *Recycling*

“Our students have a justice group among themselves, so they go out to do you know awareness programmes ... in that sense they are engaging with the community as a university. We have a programme of recycling that we do and collect recyclable materials for our people ... I think we can also take that to the community so in that sense we have the knowledge that by caring for the environment we are protecting, we are promoting eco-justice and share it with the community and the community can learn a little sensitivity and they can take care of the environment.” (A11)

“I feel that we should work together with the communities and their schools, because their schools do projects, a lot of crafts, they do a lot of arts so maybe they can help. They can help us to recycle things and make crafts out of recycled material.” (A6)

#### *Water purification in the rural communities (KwaZulu-Natal)*

“There is a need out there; we forget that people need to know and need information. A mother was getting her water from the river and making her feed and things, so I taught her how to purify the water.” (A12)

#### *Planting crops to alleviate poverty and sustain health*

“I worked in a situation with homeless people, we were involved in making sure that those in the programme are taught skills and part of the skill was a garden to produce vegetables. We had other students from other universities to come and do community work, to actually work in the garden.” (A11)

“I think when the community and the university work together it's not by only providing health education to the community but also to assist the community and show them how to, for example, how to plant. There is a high percentage of poverty in the community.” (A3)

“They don't do anything to the land. So we started developing a food circle security ... food farming where these people can grow their own in their backyard and it has been very successful with these people, a lot of the seeds are organic seeds which has gone into the market and they are doing a lot of farming in that part of the world.” (A2)

“I think we should encourage our communities regarding one home one vegetable garden, so we should also encourage and join communities to have projects like one home one garden.” (S8 FGD1)

### *Planting trees*

“One thing we can be doing is planting lot of trees to maintain the ecosystem.” (A9)

### *Cleaning the ocean*

“You know in the past few weeks there have been studies of all kinds of sea fish and they’re all full of plastic. There’s 300 million tons of plastic going into the ocean. We’re hanging on huge volumes of debt to future generations and we are hanging on to huge ecological problems to them and the population is likely to be higher. So, if you’re a mathematician you would see a picture of doom unless there are big changes in communities, starting to clean beaches.” (A8)

Support for these projects is also evident within the literature. Licen et al. (2017) argued for the planting of trees saying that this could lead to the development of productive community gardens, that would consequently enhance community empowerment and socio-economic development. They also suggested the use of a community theatre performance with local community members, saying that these actors could create awareness of the significance of environmental behaviours, namely promoting domestic seeds and organic farming whilst entertaining people (Licen et al., 2017).

## **Conclusion**

Findings of the study revealed that although participants had no formal knowledge of eco-justice as a concept, many had been including it in their practice. Both academics and students viewed eco-justice as a new concept; however, they were practising aspects of eco-justice as it was part of their faith-based and spiritual beliefs. This was in relation to respecting all of God’s creation. Participants, mainly academics, in the present study, stated that there needed to be more workshops and seminars that expanded this knowledge and ultimately would promote eco-justice. This would create a deeper awareness of what projects could be promoted in South African communities and would give direction on how to drive such projects.

Several important principles that could support the eco-justice mandate emerged within the study, such as caring for the environment, upholding an ethics of care and striving towards preserving the environment. Moreover, the planting of trees and crops, recycling and cleaning the ocean were seen as important eco-justice projects that could enable preservation of the environment. These strategies reflect ways that communities can take control of their environment and reduce pollution and global warming which consequently will reduce the overuse of cultural commons and benefit human health and protect resources such as water, food, and quality of air and weather for future generations.

The current study has profound implications for Health Science academics, students and community as it recognises the ongoing damage to the ecosystems and how environmental damage affects health adversely. These findings confirm the need for more community awareness and community participation. It is recommended that higher education embraces community engagement as a tool to create community awareness on eco-justice issues. For this to be successful, it is recommended that community engagement be incorporated into Health Science modules in order to transform the Health Science curriculum. The findings of the study can serve as a guide for academics and students as they work in collaboration with their communities on eco-justice issues to reduce the resultant negative impact on health. There could also be transdisciplinary work between departments within Health Sciences. Universities have a role in developing undergraduate capabilities and should provide opportunities for undergraduate participation in community service-learning and volunteerism. In this way, universities will be contributing to community empowerment and be socially relevant as required by the White Paper on Transformation (Department of Education, 1997).

According to all participants, university students should act as eco-warriors to steer eco-justice. Students will receive transformative experiences through the application of discipline-specific knowledge, skills and community collaboration. Additionally, academics can gain enriched teaching and scholarship opportunities.

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## Notes on Contributors and their Contributions

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## Percentage contribution

Areas of contribution	Author	% Contribution per area, per author (each area = 100%)
Conception or design of the paper, theory or key argument	Chandramohan	50%
	Bhagwan	50%
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