

Community Education Programme Report

Environmental Health and Waste in the Community

DEVELOPING AN ENVIRONMENTAL JUSTICE CURRICULUM



higher education
& training

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THE SHACK

The shack is my home background that determines the way “I am”
“The shack my beginning, the shack is my ending”
Losing hopes and dreams that leach through the soil
As we keep on dumping waste material.

The shack is my home background
That keeps me warm during rainy floods of days,
While lifting up heavy buckets to throw away water marks,
That left behind floating shoes.

A winsome saint of smell that attracts insects is the wisdom of daily practice,
Our father can you forgive us for our sins
As we forgive those who punish us,
And give us our daily bread that provides the sustainability to our early childhood
development,

The shack is my beginning,
The shack is my home that determines the history behind my soul,
“As we keep on praying for better tomorrow” willing to find forgiveness.
We lay, we get, we spend but little we see of the nature.

by Masixole Brian Mageje, Veeplaas



1 INTRODUCTION

This work emerges out of the proposal for the establishment of Community Colleges in the 2014 White Paper for Post-school Education and Training. The idea of establishing a third tier of post-school education focusing on adults and youth not-in-education and training is the result of a critical analysis of the current state of education. In 2011 of the more than 31 million adults older than 20 years, 7.9 million have no secondary education and a further 10.5 million have incomplete secondary education. The White Paper proposes inter alia that Community Colleges offer formal and non-formal adult education programmes. Our work demonstrates how non-formal Community Education can emerge through a participatory action research process out of people's experiences and from the social interests generated within communities.

1.1 Objectives of project

This project uses a participatory action research method to develop an environmental justice curriculum in four communities surrounding the Missionvale Campus of NMMU. This approach to Community Education enables democratic agendas to emerge at local levels to challenge oppression linked to exploitation, marginalisation, cultural dominance, powerlessness and violence. This form of Community Education exists neither to help people enter into the workplace, nor to place profit as the main objective. Instead it focuses on education that benefits the whole of society and nature. It is an education which works to bring about social transformation.

The main objective of this work was to investigate environmental health issues in general and waste specifically in the four communities where we intend to build community intervention and learning circles (CLICs) after a process



of participatory investigation and curriculum building. We wanted to examine in more depth the issues of environmental health and waste as they are situated within an environmental justice framework.

The mapping process investigate:

- The experiences of environmental injustice and its relationship to the environmental health of the communities of interest to the research. This included observing the natural and built environment and interviewing community members to uncover the ways in which people were affected by environmental injustice and the attendant health implications.
- The management of waste at a local level and include an examination of the work of waste pickers as well as local recycling initiatives. This gave us an idea of the current state of waste management in these communities – as it applies to local government and community/household processes.

The understanding developed from our investigations provided a basis for relevant recommendations on what might constitute a Community Curricula on Environmental Health and Waste in the Community as part of the Environmental Justice Curriculum.



1.2 Participatory curriculum making

We recognise that there are different ways of looking at the curriculum. If we were engaging in a conventional educational programme and the curriculum was being designed centrally by subject experts, then we are likely to begin by defining it as content - those things experts think learners should know or understand. Such a curriculum might also include *skills* and *attitudes* and *performative outcomes* that can be tested and measured.

This curriculum could also be about method; the ways an educator could engage learners around the content of the curriculum. Such curricula also embody *principles* and *beliefs* about the world and about learners that curriculum designers and educators hold. Rarely are these hidden aspects of the curriculum made explicit.

We use the term ‘participatory curriculum making’ as a short hand to refer to the *process and praxis* of collective curriculum making by educators and learners. Participatory curriculum making involves educators and learners in a collaborative journey of investigation and learning which has as its intention the radical reimagining and remaking of our world. We argue that the values and beliefs which underpin the curriculum must be made clear and must be for the benefit of people and nature. The curriculum should be ‘*useful to learners and society*’ (CEP, 2014, p. 6) and sustain the systems of nature. We should define collectively what useful education is. Responsibility for the curriculum and learning should reside with educators and learners. It should encourage the perspective that, ‘*educators can learn from learners and learners can learn from educators [and learners can learn from learners]*’ (CEP, 2014, p. 11). The curriculum should respect knowledge and information from local communities and ‘*work to create mutual understanding and respect across and between different cultures and knowledge systems*’ (CEP, 2014, p. 8). This education should build on the

: daily experience of living that working class learners have and develop a critique of current ways of living and organising society. We want a curriculum that puts forward ‘*a whole range of different ways to explore stories, ideas and issues and to learn things that are useful to us*’ (CEP, 2014, p. 12). This curriculum should be geared towards a range of actions to protect nature and transform our ways of living.



: We have experienced curriculum making as an intensely political process and praxis. The reason why we think about curriculum making in this way is because we acknowledge that the philosophical underpinnings to our work fundamentally shape the space from which we respond. This ontological orientation is in turn a counter to living and working in a context where new forms of global capital accumulation have fundamentally reshaped public education by fusing ideology and material forces into a historical bloc of neoliberal common sense (Torres, 2013). Neoliberalism has connected the state firmly to working in the interest of capital, thus remaking the nature and purpose of the state. It has also “greenwashed” fundamentally unsound environmental practices

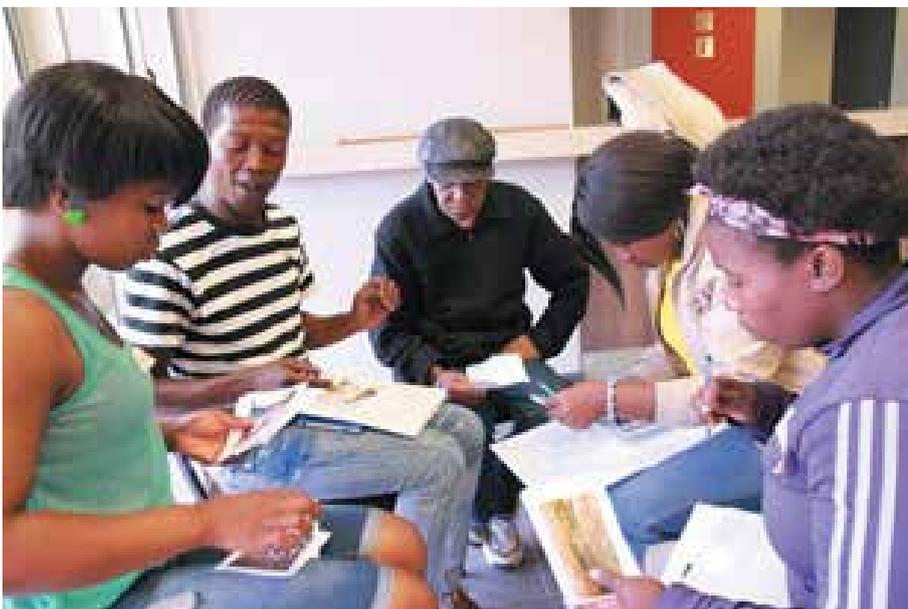
through ideas such as carbon trading and the green economy

By redefining ideas around what is in the common interest and for the public good, neoliberalism disrupts the relationship between each of us and the state, and between our communities and the state. In doing so it has advocated for a reduction in the role of the state in the public sphere, emphasising the need to privatise public goods and allow an unfettered market to determine what is useful and what is wasteful, or not for the public good. The effects have been devastating for the earth and for working class communities everywhere.

There are also other elements within our working theory of curriculum making. For example, we think that curriculum making is also about the unveiling of the world, knowledge and hope. (Freire P. , 2005; Freire P. , 1998). Kahn (2010) “unambiguously demands that the survival of the planet (and ourselves!) underscore our political and pedagogical decisions, despite the fact that seldom have questions of ecological concern been made central to the everyday lives of teachers and students or to the larger context of movement work.” (Darder, 2010, p. xiv) Darder argues that a critical understanding

: of the ecological crisis is in all likelihood “this
 : ‘missing link’ in the curriculum of both public
 : schools and political movements that is most
 : responsible for the historically uncritical and
 : listless response to the global suffering of human
 : beings subjected to imperial regimes of genocide,
 : slavery, and colonialism” (Darder, 2010, p. xiv).
 : A focus on the ecological crisis, its manifestation
 : in environmental health issues in working class
 : communities, and social movement responses, is
 : the work of this curriculum making process.

: The development of participatory curricula around
 : waste and environmental justice is part of the
 : conceptualisation of Community Colleges and
 : the role and nature of the non-formal education
 : which could take place within them. The Draft
 : National Policy on Community Colleges (DHET,
 : 2014) states that there should be spaces for
 : non-formal adult education. Colleges should
 : be flexible in their programme offerings and
 : include programmes driven by the community
 : developmental priorities, as well as the priorities
 : of the State (section 13.1) and that Non-formal
 : programmes shall take place on a ‘needs’ basis,
 : and shall be aligned strongly to local contexts,
 : and to employment and community development
 : opportunities. (section 13.6)
 :



The development of participatory curricula around waste and environmental justice is part of the conceptualisation of Community Colleges and the role and nature of the non-formal education which could take place within them



2 METHODOLOGY

This section discusses the formation of the curriculum team, the research settings and the theoretical frameworks that underpin the curriculum development research process. It provides a brief description of the research process and the ethical protocol which was followed.

2.1 The Curriculum Team

A Community Education Programme team of 5 academics working together with 23 community educators formed the core curriculum research team. This core curriculum research group was responsible for overall coordination of the research process, and managing of data collection from the teams in the field. Community members and trade union representatives were invited to join the research team as volunteer fieldworkers. It was intended that together these groups would form the curriculum development team that would work towards developing an environmental justice curriculum.

Bringing the curriculum team into existence involved the following steps: community mobilisation and a community meeting; as well as trade union meetings to elect the participants from the two sectors. Unfortunately the planned meeting with the trade union was postponed and no trade union representatives could be elected to join within the timeframe of the data collection phase of the curriculum development process.

The Curriculum Research Team comprises the core Team of 28 people along with 30 other community members in the role of volunteer fieldworkers. All participants were prepared for this work and a three day workshop which established the purpose of creating a participatory

environmental justice curriculum and the participatory research methods that would be used to facilitate this. The investigations on Environmental Health and on Waste ran in parallel using the same methodology and tools conducted by the same curriculum team participants.

2.2 Settings

Four communities were purposively selected to provide maximum variation through a combination of environments that would include two informal settlements (Ramaphosa and Chris Hani) on an old waste dumping site and two communities (Veeplaas and Soweto-on-Sea) that were previous informal settlements along the flood plain of the Chatty river and which has been upgraded to formal housing in the past ten years. During the training, a transect walk was conducted in another community Rolihlahla, an informal settlement adjacent to the Missionvale Campus of NMMU. Data from this walks are included in this report. All sites include households that are amongst the poorest in the Nelson Mandela Metro and in all areas unemployment is high. Services in the informal settlement areas are limited to the provision of water at communal standpipes and a bucket system or pit latrines for human waste removal, whilst basic services are provided in two areas. Ramaphosa and Chris Hani are adjacent communities in a relatively small area and were treated as a single site. Whilst Veeplaas and Soweto-on-Sea, which are also adjacent communities, stretch across a much wider area and they have been considered two separate research sites. The Rolihlahla community was treated as an additional fourth site. A short settlement history is provided for each site and statistics setting out the demography and living conditions for the Nelson Mandela Metro are provided below.

A Community Education Programme team of 5 academics working together with 23 community educators formed the core curriculum research team.



2.2.1 Demographics and Living Conditions

The table below sets out key statistics for the NMBM metropolitan area. Whilst the population has grown somewhat between 2001 and 2011, and the average household size has declined slightly, the number of households has grown considerably over ten years. The unemployment

rate shows a decline between 2001 and 2011, but this figure excludes everyone who has become discouraged and is no longer looking for work. The number of people, who are not in employment at all, will be considerably higher. Young people are most likely to be without employment. Access to education has improved. Living conditions, with the exception of refuse collection, have improved steadily too.

Key Statistics for NMBM	2011	2001
Total population	1,152,115	1,005,779
Young (0-14)	25,5%	26,2%
Working Age (15-64)	68,5%	68,5%
Elderly (65+)	6%	5,3%
Number of households	324,292	260,799
Average household size	3,4	3,7
Female headed households	40,6%	38,6%
Dependency ratio	46%	45,9%
Growth rate	1,36% (2001-2011)	0,73% (2001-2011)
Unemployment rate	36,6%	46,4%
Youth unemployment rate	47,3%	56,3%
No schooling aged 20+	3%	6,8%
Higher education aged 20+	12%	8,9%
Matric aged 20+	30,5%	24,8%
Formal dwellings	87,2%	75,2%
Housing owned/paying off	61,4%	59,4%
Flush toilet connected to sewerage	87,4%	77,6%
Weekly refuse removal	82,9%	86,1%
Piped water inside dwelling	74,1%	47%
Electricity for lighting	90,5%	75,2%



2.2.2 Ramaphosa and Chris Hani

Ramaphosa and Chris Hani are two adjacent communities that have developed next to and on top of what was a municipal waste disposal site for townships that fell under the apartheid structure of the iBhayi Municipality. The site was situated at the edge of a natural wetland system that drained into the Chatty River. At the site, the iBhayi municipality compacted household and industrial waste, together with earth, rocks and building rubble and abandoned the site after community protests. The wetland system was bordered by industry, a large set of single men’s quarters for municipal migrant workers and by working class housing. A primary school and crèche separated middle class housing from the waste disposal site.

Today the area is an informal settlement with minimal services. In January 2013, 300 families lost all their possessions when a fire burnt down their shacks. People remain living here despite the hardships, because the area is close to work opportunities, schools and health facilities.

This area was a municipal landfill long before 1994 and it stopped being used as a landfill because people complained about the smell and the health hazards it causes...People living in this area invaded the land illegally. The municipality tried to stop the people from invading the land but people refused to be stopped.

(Ramaphosa-Chris Hani; Living on a Landfill)

Ramaphosa kwakuyindawo yokulahlela khona inkunkuma ziinkampani ezahlukeneyo kwaye namacandelo karhulumente. (Ramaphosa was a place where rubbish was dumped by different companies and government departments)

(Ramaphosa-Chris Hani; Ramaphosa)

The place [Ramaphosa-Chris Hani] is a very over populated informal settlement made up of very old houses (shacks) that are built from zinc, wood and hardboard. There is no infrastructure, people are using the bucket system and they fetch water from communal taps.

(Ramaphosa-Chris Hani; Living on a Landfill)

2.2.3 Rolihlahla

Rolihlahla informal settlement was established on ground that belonged to Vista University now the Nelson Mandela Metropolitan University. The settlement is bordered by the NMMU campus, a graveyard, new RDP houses and the busy national road to Uitenhage. Children cross the national road daily to get to local primary and high schools and road accidents at crossings are a frequent occurrence. The settlement is on a steep hill and access by vehicle into the settlement is difficult. This compromises access for services like refuse collection and also makes access for sanitation workers difficult. Accordingly most households use pit latrines, which sometimes collapse and overflow when the soil becomes saturated after heavy rains. Fire trucks too have difficulty accessing the site when fires occur and residents attempt to control fires themselves (Sobuwa, 2013). Households are earmarked for resettlement at Joe Slovo. Residents are demanding relocation to serviced sites and there has been conflict between the DA and the ward committee structure which represents the community over the management of the relocation process.

(Williams, 2014)

Xolisile Ngqomva (age 26 years) lives in a 3 room shack with 7 residents. The house does not have windows they used a piece of cardboard to close the windows and they use a MacGyver stove to cook food for the family. No-one is working, they don't have [authorised] electricity.

(Rolihlahla; Since 1999...)



This is the story of Mrs Nomvula Ndabane who lives in 2VTO 255, Rolihlahla. She is the mother of two children, living with them and her husband in a two-room house. They are unemployed and are only surviving through child support grants. They live in a house with no toilet, electricity or water. They are using the neighbour's toilet, because they do not have the material to build their own. They are using a radio which works with small batteries. They are using paraffin and candles to light and cook. Their shack is built from different materials, thus when rain comes, they are not safe. There is a dumping site in front of their yard which forces them to close the door, due to the bad smell. And when there is wind, they are not safe, because the road is gravel and the dust affects their eyes.

(Rolihlahla; Dumping Site In front of Yard)



storm water drainage allegedly “dug up some of the graves that were in our yards and threw them in the river in order to lay sewage pipes. Coffins were removed with bulldozers and human remains were all over the place.” Nomvula Xhego told a reporter (Sizani, 2011). From the year 2000, government started building RDP homes in the area and more recently, a rectification process was started to improve sub-standard homes. Residents say contractors simply dumped large amounts of building rubble from this process along the river bank.

The story is based in Soweto on sea in the area called Khiwane. The people who came to live in this area were removed from Korsten and the place was called Mgababa then. In 1976 the area name was changed to Soweto-on-Sea by the new isibonda called Ferreira (white guy). People where living in the informal settlement then. In 2000 the RDP houses were built.

(Soweto-on-Sea; The area called Khiwane)

2.2.4 Soweto-on-Sea

By the 1960s the apartheid government had demolished informal dwellings in Korsten, relocating more than 40 000 people to New Brighton. The enormous pressure on existing housing stock and more forced removals saw Soweto-on-Sea established in the mid-1970s. Soon it became one of the largest informal settlements and continued to grow as households rented out space in back yards and people settled outside the iBhayi demarcated areas closer to the river (Berry, Roberson, & Campbell, 2004).

After the floods of 1983, the Cape Administration started moving 500 families off the 1 in 50 year flood zone to a transitional settlement in what was to become Motherwell Township (White, 1984). Initially aggressive policing prevented re-settlement, but soon people re-settled the area.

In 1992, in-situ upgrading of the area began which resulted in high density development with individual housing units on very small plots and no or very limited public spaces. Estimates from 1994 indicate that the area was home to about 80 000 people (Solomon & Viljoen, 2003). In one area, the pressure on land saw people settling on a graveyard dating back to 1947. During the upgrade, contractors establishing sewage and

2.2.5 Veeplaas

Veeplaas was formally established in 1879, initially as agricultural garden plots. Within a relative short space of time the number of dwellings, primarily wood and iron, increased dramatically (Apple, 1988 in Berry, Roberson, & Campbell, 2004). Following these early beginnings, the development of Veeplaas followed a similar pattern to that of Soweto on Sea. Residents settling here were primarily people unable to find housing within Port



Elizabeth township areas as well as a small number of migrants from the former homelands and displaced farmworkers. Swilling estimates that 85% of housing for Africans was built before 1970s. (Swilling, 1994, p. 86). Water was available from communal standpipes and sanitation.

Veeplaas families, as at Soweto-on-Sea, were moved off the floodplain to Motherwell Township after the huge flood of 1983 to Motherwell Township (White, 1984) and here too, people soon re-settled the area. The in-situ upgrading of 1992 saw few families relocated from the area. The upshot was that Veeplaas houses were built on very small plots and there are very limited public spaces and very narrow roads between houses. As in Soweto-on-Sea, the area has seen the rectification of houses and dumping of building rubble along the embankment and on the floodplain. Attempts to use the floodplain



for recreational activities were only partially successful and the area has been resettled to some extent. The floodplain remains an important grazing area for families who keep cattle.

They are four living in the house. No one is working and they have to walk about 30 minutes to the bus stops and taxi rank. To survive, they depend on the R310 per month from the social grant for her granddaughter; nothing else brings in income. (Veeplaas; Family lives in one room)

Ma' Msimang has had cows since 1976. She said: "I'm doing this out of love and passion for the livestock and my parents were stock farmers so that's where I learned and gained experience of farming"...[the herd] was [started] a long time ago, a man wanted to buy a car, then he sold them the cow so that's how the farming started – with one cow."

(Veeplaas, The story of Ma'Msimang's cows)

2.3 Theoretical Frameworks

The methodology which informs the Community Education Programme (CEP) in its curriculum-making process arises from two theoretical frameworks, both of which are situated within an epistemological perspective that is based in critical theory and radical pedagogy:

- Community Participatory Action Research (CPAR) is a theory and practice to interrogate conditions for building community education programmes that encourage community change (Kgobe & Baatjes, 2012). CPAR is a qualitative research approach which positions the researcher as both participant and researcher. This approach shaped the research process and methodology.
- A critical ecopedagogical perspective (Kahn R., Critical Pedagogy, Ecopedagogy and Planetary Crisis. The Ecopedagogy Movement, 2010) establishes a dialogue between social and eco-justice, "wherein the destruction of the environment is taken up and fought against alongside the battle to end the terrorizing of the poor and powerless." (Kahn R. , 2006, p. 5).

These perspectives provide the two main lenses through which the data generated during the participatory research process are interrogated. These frameworks are discussed briefly below.

2.3.1 CPAR

CPAR assumes that those who have been systematically denied education or have been excluded, carry specifically revealing wisdom about history, structure, consequences and fracture points in unjust social arrangements. It sees all participants as knowers, learners, and researchers - all have the authority to interrogate and construct knowledge. It therefore embodies a democratic commitment to break the monopoly on who holds knowledge and for whom social research should be undertaken. CPAR deliberately inverts who frames research questions, designs methods, interpretation and products. It propels into prominence the role of the marginalised as architects of critical enquiry – the originators of knowledge for social change and collective praxis. The ability to do research on



one's social world is considered a basic human right – the right to research; or the right to the tools through which any citizen can systematically increase that stock of knowledge which they consider most vital to their survival as human beings and their claims as citizens (Appadurai cited in Cammarota & Fine, 2008).

The CPAR process (Kirkwood & Kirkwood, 2011) we envisage is a phased process that incorporates the following activities:

- **Community mobilisation** through meetings with local structures and media introducing the initiative and its purpose
- **Data collection** through participant observation and community interviews
- **Data analysis** in two phases:
 - o First is a **codification** exercise which invites community investigators to select, clarify and name key trends and changes from the raw data and generate narratives that bring together interviews and observations with community members own experience of their locality.
 - o Next follows **decoding** where the research team further identifies and unpacks themes, and generates a meta-level critique by looking across narrative codes.
- The **development of curricula and learning resources** follows next and continues the

data analysis, linking the findings to starting points for learning and action

- The **draft learning programme is assessed** through a large community workshop that begins to test the proposed curriculum and learning resources.
- Finally the research team meets to evaluate the feedback from the learning workshop, to refine the emerging curriculum and to **develop a curriculum guideline** for the intended learning area.

For our investigation into environmental justice in these 5 communities the use of a qualitative and participatory approach confirmed our democratic and emancipatory stance on education and curriculum making. It also provided us with an opportunity to begin a process of non-formal community education which would form the basis of learning groups within the Community Education Programme.

2.3.2 Critical Ecopedagogy

We live in a world where the population has nearly doubled in 30 years, where oil consumption has more than doubled, natural gas extraction and the number of vehicles globally have both tripled, air traffic has increased six fold, our consumption of paper has doubled, billions of tons of pollutants are released annually, half our forests have disappeared, half our wetlands have been filled or drained, 40% of agricultural soils have been degraded, fish extraction has doubled and species are disappearing faster than in the last 65 million years (Kovel, 2008, p. 2).





This massive explosion of extractive consumption and disastrous natural costs have not made the world a better or fairer place to live in. Oxfam in its document 'Working for the Few: Political capture and economic inequality' state that:

- Almost half of the world's wealth is now owned by just one per cent of the population.
- The wealth of the one per cent richest people in the world amounts to \$110 trillion. That's 65 times the total wealth of the bottom half of the world's population.
- The bottom half of the world's population owns the same as the richest 85 people in the world.
- Seven out of ten people live in countries where economic inequality has increased in the last 30 years.
- The richest one percent increased their share of income in 24 out of 26 countries for which we have data between 1980 and 2012.
- In the US, the wealthiest one percent captured 95 percent of post-financial crisis growth since 2009, while the bottom 90 percent became poorer.

(Oxfam International, 2014, p. n. pag.)

Educators are complicit in the massive ecological crisis which encompasses all forms of life on earth. Kahn (2010) argues that progressive educators and concerned citizens should re-imagine the role of education; actively working to enable a critical ecopedagogy to emerge. Accordingly critical ecopedagogy should:

- Analyse the ecological crisis and responses to it comprehensively, thereby; exposing greenwashing and notions of sustainable development that legitimises the extraction of human and natural resources for profiteering.
- Consider how political and economic relations work together to produce a view of the world that accepts humans' domination of nature. It should challenge a view where the extraction of profit becomes the driving connection between people and the natural world. Such a perspective reduces all social relations between people, and all the relationships of

people to nature "to mere money relations" (Foster, 2012, n. pag.).

- Develop ways to 'read the world and the word' (Freire, 1985) that:
 - Is "firmly grounded in a material and social understanding of our interconnected organic existence" (Darder, 2010, p. xv); and which brings together into a whole the technical aspects of environmental science, how culture is produced, an understanding of political oppression and economic exploitation and the possibilities for new relations that are liberating, nurturing and healing of humans and the earth.
 - recognises indigenous, feminist and working class ways of knowing that challenge existing social relations which fuels oppression, exploitation, violence, marginalisation and alienation.
- Position itself as part of a global movement for social and educational change that develops from the bottom up through grassroots activism and education. Such a pedagogy supports individual transformation and collective action.

According to Darder (2010, p. xiii), Kahn warns that, "A failure to integrate ecological sustainability at the core of our pedagogical struggles for liberation...is to blindly and misguidedly adhere to an anthropomorphic worldview in which emancipatory dreams are deemed solely about human interests, without attention either to the health of the planet or the wellbeing of all species with whom we walk the earth."

The philosophical underpinnings for an Environmental Justice Curriculum come from a radical critical pedagogy which views learners as holders of knowledge and active participants in the creation of knowledge. It bases the creation of curriculum (as content and praxis) on the idea that knowledge should be socially useful, humanising and "should enable social change for equality and justice." (CEP, 2014, p. 7)

In deciding on an approach to curriculum areas we agree with McLaren and Houston (McLaren & Houston, Revolutionary Ecologies: Ecosocialism and Critical Pedagogy, 2010, p. 32) who assert

that it is “quite difficult to sever questions of environmental and ecological justice from the more familiar terrains (for critical pedagogues at least) of social and economic justice.”

We acknowledge that environmental injustice is both pervasive, in that climate change and environmental destruction has reached a global level, but also that the ways in which social, economic and political power are distributed have a profound and unequal impact on who is most affected by environmental change and degradation. The unjust conditions of our society under neo-liberal capitalism *require that the most economically exploited and socially vulnerable people and places on the planet bear the greatest burden of ecocide on their bodies, livelihoods and communities.*

(McLaren & Houston, *Revolutionary Ecologies: Ecosocialism and Critical Pedagogy*, 2010, p. 33)

However we are not without hope. *To be subjected to crisis is to partake of structural threats and potential failures but it is also, contradictorily, to be able to identify threats such that they become the objects of one’s own autonomous decision making power.*” (Kahn R., *Critical Pedagogy, ecoliteracy and planetary crisis: The Ecopedagogy movement*, 2010, p. 4)

What this means for community education is that it is the very crisis which provides the opportunities for learners to move from a

position as objects of the crisis to subjects of its remediation. If we are courageous enough to make alternative curricula and educational spaces available, then the necessary freedom to create new knowledge and alternative decisions might fundamentally change the unequal and unjust arrangements of power in our society. This is what we mean by a Critical Ecopedagogy. It is important to recognise that the aims of a *Critical Ecopedagogy* is not the relief of symptoms but the fundamental change to the ways in which we think and act on the world.

2.4 The research process

2.4.1 Community mobilisation

Community mobilisation to nominate community participants to join the research process, helped to introduce the initiative to local ward structures and the local councillor, and community members in general.

Following their nomination through community meetings, 30 community members finally joined the core curriculum research team of 28 members from the CEP. In the week following their election community members attended a three day training workshop that included practical experience in using the research instruments. During the workshop each area-based group nominated a convener that secured a central meeting point from which the fieldwork would proceed and where subsequent documentation would take place. The convener also provided the link between the CEP Office and participating community members.

During the training the group also mapped out their own community and began to identify routes for observation that would enable a rich range of data to be collected. Prior to starting the data collection, each area based group first split into groups following specific routes and then into sub-groups of pairs making observations and conducting interviews around either environmental health or waste in the community.





2.4.2 Data Collection

2.4.2.1 The transect walk

The transect walks lasted between two to three hours at each of the sites. On 18 November two groups walked along different routes through Veeplaas; on 19 November three groups walked through Soweto-on-Sea and on 21 November two groups walked through Ramaphosa and Chris Hani making observations and conducting interviews.



Our observations were on an open field filled with a series of dumping sites and grass near Chatty River... The people we met were curious about what we are doing, and whether we offer solutions to the problems we are asking people about.
(Soweto-on-Sea; The Story of Thembinkosi Frans)

We observed shaking bodies due to cold water and a few boys had scratches with a rash. We asked how does this water make you feel?...
(Veeplaas; The Environment of the Chatty River)

2.4.2.3 Interviews in the field

As researchers walked along their route, they chose purposefully to interview community members, because they noticed something of interest that they wanted to investigate further.



On the 18th November 2014, we were doing Community Mapping, walking in the Veeplaas Area. The route of the transect walk started at the bridge of the Chatty River. The sun was very hot about 30°C. The flies were all over the place especially on our route because it was near the dirty, smelling river.
(Veeplaas; Family lives in one room)

2.4.2.2 Observations

Along each of the routes, one smaller sub-group focused on observing environmental health issues and another focused on waste. The researchers were asked to use all their senses during the observations and to take note of how they felt when upon seeing something of interest.

As we were walking following the route of the transect walk, we were talking and making observations and our minds were struck when we saw a shack far from other shacks.
(Veeplaas; Family lives in one room)

We started the transect walk at Hlanganani Street, where we came across a mixture of newly developed RDP houses and shacks. People were moving up and down the street and were curious about what we were doing. As we passed by the corner of McBride St, we met a woman chatting to her neighbour at her gate. I stopped to greet her because I was astonished at the recycling bags that filled her yard.
(Soweto-on-Sea; The Story of Nyameka Booi)

Requesting an interview was not always easy and researchers had to win the trust of the person they wanted to interview by explaining where they come from and what the purpose of the research was. They also had to overcome their own uncertainty.

...the owner of the house arrived asking me who am I and what do I want? I tried to calm him down and introduced myself to him saying I'm a community investigator from NMMU (Vista) and I'm doing community research and that is why I am at his home. His name was Velile Landu and he is 59 years old. He became so interested after I introduced myself...

(Soweto-on-Sea; The house on Bafana Street)

Firstly we were a bit lost about how we would approach the lady to ask her to do the interview with us about the environmental injustice which she clearly lives with on a daily basis. Sibusiso asked for water from the lady that stays there, as it was very hot and we were thirsty for some water. She was very happy to help us and she went inside the house and brought a 25litre water container and a shiny metal cup.

(Veeplaas; Family lives in one room)

2.4.3 Documentation

Immediately after completing a transect walk the groups following different routes met and started the process of documentation. They first completed all their observation notes. The CEP Office team supported the groups to write up their observations and interviews by asking the group to tell the story of their day. As people were sharing, the office team asked questions that helped the researchers to organise their information along the basic questions: where, when who, what, and how?

Quickly and with much enthusiasm researchers started writing up their observations as a narrative and weaving in the interviews they had conducted. Usually they worked in pairs or in small groups of three people, but a few people chose to work individually. Although all interviews

were conducted in isiXhosa, because this was the dominant language in the community; each writing pair decided on the language in which they wanted to write up their interview. Some narratives were written in isiXhosa and some in English. Each narrative tried to focus on the issue examined and to explore the activities that happen in the area and to examine the relationships, views and attitudes of the people that were interviewed.

A few researchers wrote poems that expressed their feelings about their experience of the transect walk. The poem which follows, was written to give expression to Sindiswa Moyeni's feelings about the children she met during the transect walk.



iKusasa labantwana kumele baboniswe kakuhle.

Abantwana sibakhulise ngendlela eyiyo, Heee wethu mama, tata, sisi nobhuti!

Masibanakekele abantwana bethu

Kodwa sibaphathe kakuhle babaluleke

Ngomso, mababezi nkokheli zangomso

Sibabonise indlela ezizizo, "Future Leader"

Abantwana zizibusiso ezivela enkosini

Masizame ke ukuphuhlisa abantwana bethu

Masizame ubanika impilo engcono

abantwana.

Abantwana, need a brighter future.

We have to give them 100% support



*Asifuni abantwana bethu baphelele
kwiziyobisi, etywaleni nakwezinye
Abantwana kufuneka sibonwabise ngandlela
zonke ezilungileyo.
Sifuna ukuphuhlisa umphakathi wethu
ngandlela zonke, kuba sibona izinto
ezingalunganga
Kufuneka abantwana bethu balale betyile.
Siyazama ukuze bafumane imfundo
Kufuneka sibabonise ngandlela zonke kuba
impilo nobomi zibalulekile
Bantwana, sizamela nina imfundo, sizamela
nina ubomi obungcono!
Sifuna nifunde, ningenzi izinto
ezingalunganga.
We need to show the children love and
support all the way!
Funeka abantwana sibabonise ukuba
imfundo sisitixho sobomi
Kufuneka sibafundise babenenjongo
namaphupho ebomini
Kuyoze kubenini sikhala ngemfundo?
Let us wake up and do something that is right
for our children!
Vision, mission, skills, education, we can
make something better as we are the
community. (Veeplaas, Trying to get a
successful life for our children)*

2.4.4 Analysis and meta-narratives

Whilst it is acknowledged that analysis started during the documentation process, a more detailed and intentional process supported data analysis over two further days: first in an area-based group and then in a plenary group. These two steps were part of coding and decoding the data thematically. (See page 18) The two steps are briefly set out below.

- Immediately following on the data collection, each area-based group met at NMMU to continue writing up their narratives. The groups evaluated and revised their own narratives. The groups described the problem they identified from the point of view of a range of community members, including waste collectors, small and big business, and local government. They then shared these in plenary and got feedback from the group on how to strengthen their narratives.

In one instance (Veeplaas) this meant group members going back to community members and checking their understanding of a situation or conducting further interviews. 50 narratives were created. During this workshop, the groups did a first level thematic analysis of the more than 2000 photographs. The following themes emerged: housing; sanitation; water & water-infrastructure; waste; recycling; livelihoods; impacts on children; impacts on natural systems.

- After all the transect walks and the first round of analysis were completed, all the area-based groups came together for a one day workshop to do a meta-analysis. The purpose of this work was to develop explanations for what they had observed and heard in communities. The groups examined sets of photographs from different communities and presented explanations of the problem from a range of viewpoints held in the community or about the community. The explanations surfaced common sense perceptions and assumptions about the environmental issues communities face. These views were then critically examined by presenting short plays bringing explanations together and through asking further questions. From this work two broad themes were identified from which to explore environmental health concerns: “Unequal distribution of resources and harm”; and “Injustice towards nature”. These themes are also used to present the data on Environmental Health in this report, with the data on Waste being collated into three thematic case studies.

The analysis for all of the data collected during our transect walks across the 5 communities was dealt with in two phases. The two main steps are briefly set out below.

First is a **codification** exercise in which community investigators select, clarify and name key trends and changes from the raw data (the observations they made and interviews they conducted) and generate narratives that bring together their findings/data with their own experience of their locality. In the case of the volunteer field researchers, the sites for

their observations and interviews are their own communities. This enabled us to use deep local knowledge introducing divergent view points from local residents and other CEP team members into the data collected and during the later decoding.

Immediately following on the data collection, each area-based group met at NMMU to continue writing up their narratives or codes. The groups evaluated and revised their own narratives. The groups described the problem they identified from the point of view of a range of community members, including waste collectors, small and big business, and local government. They then shared these in plenary and got feedback from the group on how to strengthen their narratives. In one instance (Veeplaas) this meant group members going back to community members and checking their understanding of a situation or conducting further interviews. 50 narrative codes were created. During this workshop, the groups also did a first level thematic analysis of the more than 2000 photographs. The following themes emerged: housing; sanitation; water & water-infrastructure; waste; recycling; livelihoods; impacts on children; impacts on natural systems.

Next came **decoding**, where the research team further identified and unpacked themes and generated a meta-level critique. Following the transect walks and documentation days all of the groups were gathered in a one day workshop to deepen the analysis and begin decoding the narrative codes of environmental health and waste in their communities by discussing issues that they saw across their narratives.

The purpose of this work was to develop explanations for what they had observed and heard in communities. The groups examined sets of photographs across area-based groups and presented explanations of the problem from a range of viewpoints held by residents or by others about the community. The explanations surfaced hegemonic common sense perceptions and assumptions about the environmental issues communities face. These views were then critically examined by presenting short plays bringing explanations together and through asking further questions.

From this work two broad themes were identified through which to present the findings around environmental health concerns: “Unequal

distribution of resources and harm”; and “Injustice towards nature”. Three case studies narrate the finding on Waste: *Waste pickers; Household waste in communities; and Waste and the local government response*.

Finally, we looked across the meta-narratives and case studies and examined where the similarities and dissonance lay. This enabled us to further unpick the ways in which waste, environmental health, environmental justice and community action intersect, to develop and understanding of what would be helpful in a community Environmental Justice curriculum.

2.5 Ethics

To strengthen the ethics of the research process, researchers were trained in using a standard protocol to obtain permission to interview and take photographs. Special emphasis was placed on the rights of children being photographed and interviewed. An information sheet and permission to interview form was used. The information sheet outlined the purpose of the research, how the person being interviewed or photograph was chosen, their rights as voluntary participants, anonymity and confidentiality, and how the results of the investigation would be used.

*As we continued with our transect walk near Fidel Street we came across this man next to the cows he was herding, we greeted him and asked his permission to talk to him and he was so pleased to talk to us.
(Soweto-on-Sea; The Story of Thembinkosi Frans)*

Some interviews were emotionally difficult and the groups were debriefed after each transect walk to assist them to talk about and process their feelings. One researcher had this to say:

*I felt my heart pouring tears of blood and my head was dizzy after I took in the situation and felt the weight of it in my heart...I could not hold my tears but I hid my face from the woman so she could not see that I'm crying as I lose hope and don't feel strong enough to comfort them about the environment they live under.
(Veeplaas; Family lives in one room)*



3 FINDINGS

The findings from the research are organised following the two broad research areas: Environmental Health and Waste. The issue of Environmental Health is examined under two meta-narratives: “Unequal distribution of resources and harm”; and “Injustice towards nature”.

The issue of Waste is examined through three case studies:

Case Study 1 tells the narrative of waste pickers whom we interviewed during the transect walks.

Case study 2 examines what happens to household waste within the various communities we researched.

Case study 3 collects the information we gathered around the interaction between these communities and local government around the issue of waste.

The data from all of our transect walks is interwoven to help us to see the ways in which many elements of these stories are echoed across working class and informal settlements in Port Elizabeth. We also looked at the interrelationship between these issues and the structural causes of inequality and injustice to humans and the earth. This meant that in our analysis, whilst we ‘broke’ narratives up thematically to isolate key environmental health impacts, in our interpretation we tried to look at ‘wholes’ and the interplay of relationships that would enable us to situate the analysis contextually. These meta-narratives

aim to give us a picture of what is happening with environmental health and waste across the 5 areas – Rolihlahla, Chris Hani & Ramaphosa; Soweto-on-Sea and Veeplaas.

3.1 Environmental Health Findings

3.1.1 Unequal distribution of harm and resources

3.1.1.1 Environmental health risks don’t just take place anywhere Environmental health risks are concentrated in poor communities, because of the unequal distribution of resources and the resulting unequal access to resources.

Nomathemba Jonas came to Port Elizabeth from the former Transkei, more than 20 years ago. She lived with her mother in the informal settlement of Chris Hani and then established her own home in the adjacent settlement of Ramaphosa:

uNomathemba usuka eGcuwa esiza ebhayi ngejongo zokufuna umsebenzi nemfundo apho ethe wafikela kwindlu kamama wakhe eChris Hani kodwa waphela ezakhela indlu eRamaphosa (Nomathemba comes from Gcuwa, where she came to Port Elizabeth with the purpose of looking for a job and education and came to live in her mother’s house in Chris Hani, but ended up building her own house in Ramaphosa). (Ramaphosa: Nomathemba Jonas).



Luzuko Dyantyi, who is 26 years old, is originally from Mount Frere in the former Transkei. He arrived in Port Elizabeth in 2007.

He is staying with his mother and his two brothers who are working. Luzuko is a casual at the Sasko Bread factory. His mother is a domestic worker. They came to Port Elizabeth to look for a job because they have friends and relatives in PE. (Ramaphosa-Chris Hani; The story of Luzuko Dyantyi)

Living informally might bring advantages in terms of access to urban environments and employment, but it also brings environmental health risks. Nomathemba Jonas says:

“Lendawo sihlala kuyo, ayiyo indawo yokuhlala abantu, kuba indlela izindlu zakhiwe ngayo zixinene.” (This place that we live in is not a place for people, because of the way in which the houses are built - all squeezed together).

(Ramaphosa-Chris Hani: Nomathemba Jonas).

Nomathemba’s views are echoed by community researchers who felt that there is a link between the environmental health risks associated with living informally and the nature of the land where people are living – living along a flood plain, on a landfill, or a wetland.

Another issue in Ramaphosa and Chris Hani is housing. According to the municipality houses cannot be built due to the landfill under the ground that is decomposing. Gas and many other chemicals come up from the ground and effect people living there. The waste that is decomposing under the houses means that the land can subside and within no space of time houses can fall apart and people can be injured.

(Ramaphosa-Chris Hani; Living on a Landfill)

The land question is often considered an agrarian issue, but access to urban resources is fundamentally predicated upon the issue of land – a finite resource. For people who settle informally, the ability to live dignified lives is not only an issue of housing, services and employment, but also an issue of access to land and the political and administrative processes of land use planning and the allocation of resources connected to access, ownership and control of land.

Mam Margaret lives at number VTO 224 in Rolihlahla village. She arrived in Rolihlahla in 1996 and built a shack which had three rooms. Mama Margaret still lives in the shack with her grandchildren. She feels that conflict between political parties has influenced her access to secure housing.

uMargaret uthi uneminyaka elishumi elinesibozo ehlala ebobosini, kodwa uthi bazakwakhelwa ngonyaka ka2016. Uthi lemibutho yezopolitiko iyalwa, iANC neDA, akayazi ngowuphi ozabakhela ngoba bayaxhwithana. (Margaret says she has been living there for 18 years in a shack, but says they will build houses in the year 2016. She says the political organisations, such as ANC and DA are in conflict and she does not know who will build the houses as they are divided).

(Rolihlahla, The story of Margaret).

Nomathemba Jonas and community researchers at Veeplaas echo and extend this view, arguing that access to political power and patronage fundamentally shape access to urban resources and therefore to healthy environments.

“Bekumeluba kudala simkile apha, kodwa yonke lonto yabanjwa yinto yobuqhophololo eyenzwe ngabantu abaphetheyo, kuba enyanisweni abantu banomqweno wokuhamba okanye bakhelwe kwezindawo bakuzo. Kule ndawo sihlala kuyo kukho ungenelelo lwezopolitiko, yilonto abantu behleli” (We were supposed to have been moved long ago, but all of this has been held back by the corruption done by those who are in power, because in honest truth people, people have the desire to move or have houses built where they live. Where we live, there are political interferences, this is why people stay).

(Ramaphosa: Nomathemba Jonas)

We also spoke with community members who had grievances about underdevelopment in the area and with service delivery. They told us that they have lost hope because the politicians keep making empty promises and transmitting false alarms of information. One of the elders [on the Chatty floodplain] a community activist, Kholekile Chukula, said: “We have been living this way for many years around the Nkanini Area at VBO 1440 residential address”. There are no changes taking place in their life even though they have voted for African domination.

(Veeplaas; The Environment of the Chatty River)



For some families awaiting removal, political contestation and bureaucratic and administrative delays, mean living 'suspended' lives. They find themselves unable to invest in improvements to their current living conditions for fear of losing that investment when they are moved; and unable to move away for fear of losing their place in the invisible queue, which is the process of housing allocation. The story of the family living on the Veeplaas flood plain illustrates this dilemma.

The man curiously asked us if we are here about moving the informal shacks in the area to new sites in Booyens Park and Joe Slovo. We replied saying no, we are doing community research in the area. His face became sad as if he had lost hope. The man later went inside and fetched some papers with contact information and a small map on it. The map, as we read it, showed that there is a plan to build a sewerage pipe straight through the place where they built their shack. He sadly asked us for R5 to buy airtime so they can make a follow up call to the land-surveyor and engineers who left the papers because they promised them that they will see if they can assist them to move from that place.
(Veeplaas; Family lives in one room)

3.1.1.2 Underdevelopment exacerbates environmental health risks

The underdevelopment of some communities compared to the relative development of neighbouring communities deepens the experience of inequality and increases environmental health risks.

Informal settlements are connected to other urban communities. This connectedness highlights the hardship of those living informally in comparison to the situation of others in neighbouring working class communities. It also sees some neighbours extending help whilst others profit from the situation. A community researcher explains:

Then I go straight to Qhagquwa Street where there are two different communities - on the one side of the street there are the built (RDP) houses and on the other side it is the informal settlement and shack houses. In the informal settlements there are many bad situations. Such as the house where there is no toilet and they depend on the other houses' toilets. There is no water tap in people's homes; you will find one tap in the middle of an area and there is stagnant water collected all around it. They depend on the unsafe electricity connections from the formal houses.
(Rolihlahla; Qhagquwa Street)



In attempts to develop popular solutions and/or contest access to urban resources, such as electricity, water and sanitation, the environmental health risk for the poorest and the most vulnerable increases:

Unsafe electricity connections can cause electric shocks and overloaded wires can spark a fire.

Two kids walking from school step over live electrical connections that are not covered. It is an unsafe and illegal electricity connection. Illegal connections may cause problems that can make people lose their lives and their homes as well. It is difficult sometimes to live without electricity, because in today's way of living things are done at a faster pace and I think that that is why one of the problems is illegal connections. They steal the electricity for the kids because they don't want to use candles because it might be very dangerous for the 4-8 year old kids. There are no taps close to them. Taps are too far for them to react if there is a fire.

(Rolihlahla; Since 1999...)



Most of the other houses in the neighbourhood are connected to unauthorised connections to gain access to electricity but she doesn't want these connections because her house was previously burnt by an Izinyoka connection.

(Veeplaas; Family lives in one room)

More than one family use one pit latrine where there is no water for hand washing.

This is the story of Mrs Nomvula Ndabane who lives in 2VTO 255, Rolihlahla. She is the mother of two children, living with them and her husband in a two-room house. They live in a house with no toilet, electricity or water. They are unemployed and are only surviving through child support grants. They are using the neighbour's toilet, because they do not have the material to build their own. They are using a radio which works with small batteries. They are using paraffin and candles to light and cook. Their shack is built from different materials, thus when rain comes, they are not safe.

(Rolihlahla; Dumping Site in front of Yard)

An additional consequence of under and uneven development of working class communities is that it creates division and potentially pits communities against one another in the struggle for resources.

The group also saw divisions of class as there where houses that were built with bricks and others built iron zinc. There are those who can afford and those who struggle with the basic means of survival.

(Veeplaas, Boys swimming in the river)

Into endiyibonileyo kwelinye icala zizindlu kwelinye ibelicala elingamabobosi kwaye lonto izakwenza itoy-toy. (What I saw on the other side is that, on the one side there are houses and on the other there are shacks, which may cause toy-toy).

(Rolihlahla, The story of Margaret)

uMama uNoluthando unengxaki anayo yokungabinambane apho ahlala khona. Uthi ekuqaleni babekade betsala kwizindlu ezimileyo(RDP), kodwa kwavela kwabakho ukungavisisani nabahlali bezizindlu, baphela abahlali betsala umbane ngohlobo olungekho semthethweni kwindlu yombane enkulu (power station) (Mama Noluthando has a problem where she does not have electricity where she lives. She says in the beginning they used to draw electricity from RDP houses, but there was a conflict which erupted with the community members from the houses and ended up drawing electricity in an illegal manner from the power station.

(Ramaphosa, The Story of Mama Noluthando).



Divisions between communities brought by uneven and underdevelopment also create blaming myths about why people who live informally appear to make ‘poor’ or ‘self-interested’ decisions. Additionally, divisions between communities feed myths of scarcity, suggesting that the scarcity of a resource is the primary reason for underdevelopment and disguising how access to environmental health resources, is profoundly linked to access to political and economic power. Such myths potentially misdirect struggles from below and put education forward as the main solution for problems that have deeper underlying causes

The people who live in Chris Hani and Ramaphosa put their lives in danger especially children that play nearby bad, unsafe and unhealthy places so government should educate people about the danger of not wanting to move to serviced areas.
(Ramaphosa-Chris Hani; Living on a Landfill)

Sipho Mazi said that the scarcity of electricity supply makes life difficult based on matter of fact things, like boiling water that take longer without electricity.
(Rolihlahla, The physical setting is Social)



Unhealthy places are ‘produced’
How unhealthy living environments are produced is embedded in historical socio-spatial and economic relations.

In the Nelson Mandela Metro, the frequency of refuse collection in working class communities declined between 2001 and 2011. This is a tale of different cities – a middle class city where waste is collected weekly and a working class city where waste is collected less frequently and

an underclass city in informal communities where waste is not collected. The failure to collect waste, means that community members remove waste from their homes to public spaces, from where the waste accumulating on open plots is collected either through the Community Works Programme or the Extended Public Works Programme. In informal settlements there may be no waste collection in the community and community members carry their waste to places outside the community from where the city then collects waste through a Community Works Programme.

URhulumente okwicandelo lobumdaka, kwakunye nabahlali nabo bawathatha amanyathelo ngokuthi kuvuleleke amathuba omsebenzi ngokuthi kucociswe zonke iindawo ezingacocekanga ekulahlwa kuzo inkukuma rhoqo evekini, ukuqala kusuku lwesibini evekini ukuya kwelesithandathu, kodwa abahlali abayeki ukulahlwa izinto, lonto ide yasisikhwa okanye okanye ingqondo zabo zaqhelana nento yokuba balahle ukungcola kwezindawo ngamaxesha onke
(The community sanitation sector of local government, they must also take the initiative of opening the doors of job opportunities with regards to cleaning up all the places which are dirty where people dump in the community every week, starting from the second day of the week going to the fourth, but the people do not stop dumping things and this has become a habit or their minds have got used to the dumping idea, by dumping their waste in these places).
(Veeplaas, The physical setting is social).

When waste collects in public spaces, these spaces become ‘sanctioned’ as spaces to leave all manner of waste, increasing the associated environmental health risks

Abahlali ke bathi babangelwa kukuzala kwemigqomo nokungafiki kwezithuthi zenkukuma ukulahlwa kwezindawo lenkukuma. (The community members say the reason why they dump their garbage and bucket sewerage at the dumping sites is because of garbage that gets full and is not picked up).
(Veeplaas, The physical setting is social).

When waste is not collected frequently enough, community members burn the waste in an attempt to get rid of rats, flies and other pests and to stop dogs and goats scavenging in the waste and distributing it further. Burning waste brings additional environmental risks, as Funduzufe Pre School principal explained to community researchers.

Ms Swartbooi talked about different pollution problems, a dumping site and the Chatty River which is also close to the school. The principal has been dealing with complaints from parents for the past 4 years. The main complaint was against the air pollution from a dumping site that is 10 feet from the Funduzufe Pre School. The community burns the waste and this causes a sickly grey cloud of smoke to waft over Funduzufe Pre School. Ms Swartbooi said a number of children had fallen ill since the cloud of smoke started blowing across the property.
(Veeplaas; Funduzufe Pre-school)

When commonage is used for waste, there are fewer spaces where children can play safely and sometimes spaces where waste is dumped connect with other social problems too. Again concentrating environmental health risks in poor communities.

Criminal activities are happening in these parts of the river [where waste is dumped]. People are raped, dead bodies thrown there and other things. The officials fail to solve the complex technological and environmental problems, but they are aware of the situation people are living under. It seems to me that the voices of the people of these areas are not taken into consideration.
(Veeplaas; Joy to Swim in the River)

...the isolated dumping areas near the river are often a place where murder and rape occur. Stolen goods are hidden or dumped here. Pollution and contaminated water create an unhealthy atmosphere (biological and chemical hazards) and contribute to community wide health problems.
(Veeplaas; Chatty River)

In other instances, unhealthy environments are produced, because local government infrastructure has not been developed or is not maintained frequently enough. Some families live with the accumulated effects of failing storm water systems and old sewerage infrastructure.

uMama uNosipho Nxopho oneminyaka emi60 ubudala, nothe wasihlahlela lempuku kwibali lakhe, uhambise wenjenje. Oko bafika kwesisixeko saseVeeplaas, lombhobho wogutyulo lwelindle (sewerage pipe) okhweza phakathi kwezizindlu bahlala kuzo ubachaphazela njani. Lombhobho wogutyulo lwelindle kubo umdala kwaye uyantlilitheka, zithi ke ezindawo zintlilithekileyo zivuze amanzi anukayo namdaka nathi akhweze apha phambi kwesakhiwo sakhe (Mama Nosipho Nxopho is 60 years of age, who told us her story in this manner. Ever since they arrived in the Veeplaas community, the sewerage pipe which goes through the houses which they live in, affects them in what manner. The sewerage pipe is old and it leaks, which leads the holes that leak to bring out water that smells dirty and it flows rights across her house).
(Veeplaas, Ibali ngolambo iChatty River).

Bulelwa Ngcobo lives at 9 Mayibuye St in Soweto on Sea, Port Elizabeth. She is 29 years old. She has got 2 children and she supports her mother who is 53 years old. She is unemployed. Her mother get a disability grant. They are living under bad conditions. There is a big leaking drain in front of her house. They suffer especially during the rain storms. The water gets through where the house is open, the floor gets wet and they are unable to sleep in that wet place. They sleep at the neighbour's house when it is raining. The moisture of the wet floor is affecting their health, TB and colds. They report the drain to the councillor. He didn't respond to their problem.
(Soweto-on-Sea, The story of Bulelwa Ngcobo)

Apartheid spatial planning created a land use grid that consciously placed poor working class communities in environments that are close to industry, bordered by roads with a high traffic



load, rivers and wetlands to create physical borderlands between communities. This not only created racially segregated communities, but created communities that are physically bounded in ways that brought impossible pressure on land. This reality and the fact that virtually no new housing was built by the state in black communities since the 1970s, meant that for communities to grow, public space within the community was settled informally and private space accommodated expanding families and backyard lodgers in backyard shacks. High density communities developed with very limited public space. Today what public space exists has multiple and competing use and exists along the old apartheid borderlands, and with a multiplying effect on environmental health hazards.

We saw many activities happening near the river: Grazing cows and sheep as well as goats and ducks looked after by herders; people walking across the river and children playing in groups. The river provides opportunities as well as hazards: Job creation for women who are collecting recycling and cattle farming. (Veeplaas; Chatty River)

It is an open space and on the right hand side there is a soccer field where kids play. But community people still dump rubbish out there, they do not care about the environment. (Soweto-on-Sea; The Story of Thembinkosi Frans)

My Story is about 3 boys that I met at the hill of waste, the boys are between the ages of 5 and 7 years. When we approached them, one of them ran away and we called them to stop and told them we would not beat them. They both asked for what we were eating, the boys looked like they suffer from malnutrition. Their clothes were very dirty and they had a skin rash all over, they also had no shoes on their feet. We asked why do they like to play there when it is an unsafe place? Two of them told us that they don't have any other place to play...The dangerous part was at the bottom of the hill where there is contaminated water coming from a leaking sewerage pipe. This causes human waste to leach into the ground and the water and flow under the waste and into areas where the children play. (Veeplaas; A Story about 3 Boys at Veeplaas)

These stories raise a further reality that harm from environmental risk is experienced differently.

3.1.1.3 Environmental health risks and effects for children might be bigger

Harm from environmental health risks is not only experienced differently by different groups in the community, such as those living close to a dumping site, or poorly maintained infrastructure. But, the effects for children and in particular young boys might be bigger and for children from the poorest families even bigger.



A factor in the narratives above is the pressure on public spaces which means that schools and crèches are situated on or along the 'borderlands'. But it is the nature of children's play (which is about creativity and exploration and which is developmentally necessary) and drives children, in particular young boys from poor families, to play at places where they are at risk.

We asked why do they like to play there when it is an unsafe place? Both of them they told us that they don't have any other place to play. They said that it's fun to slide on that hill with plastic sheets and they even use a bumper from a car to slide. We asked them if their parents can find them playing on that waste? They reply saying nothing their parents will say can stop them from playing there in that moment. They know they are not at school, they play on that hill. (Veeplaas; A Story about 3 Boys at Veeplaas)

“Isiszathu sokuba siqubhe apha yindlela yethu yokuzonwabisa ngoba asinayo imali engange R70 yokubhatala edolophini njengokuba apha siqubha simahla” ... Okunye esikufumeneyo kweli bali labantwana kukuba ngabantwana abangabafana amaxhoba. Kuba abakho phantsi kojongo lwabazali, kwaye xa kunokuthi kutshone omnye kuyakuba yingxaki yomzali kuba badlala bengaziwa ngabazali babo ukuba bakula mlambo. (‘The reason why we swim here is that it is one of the ways to entertain ourselves, because we do not have R70 to pay to swim [at the beach] in the suburban areas when we can swim for free here...’ Another thing that we found from the story of these kids is that the younger boys are the ones who are in danger, because they are not under the supervision of their parents and if it happens that one of them drowns, it would be a problem for the parent, because they are playing in the river without the knowledge of the parent). (Veeplaas, The boys who were swimming in the River).

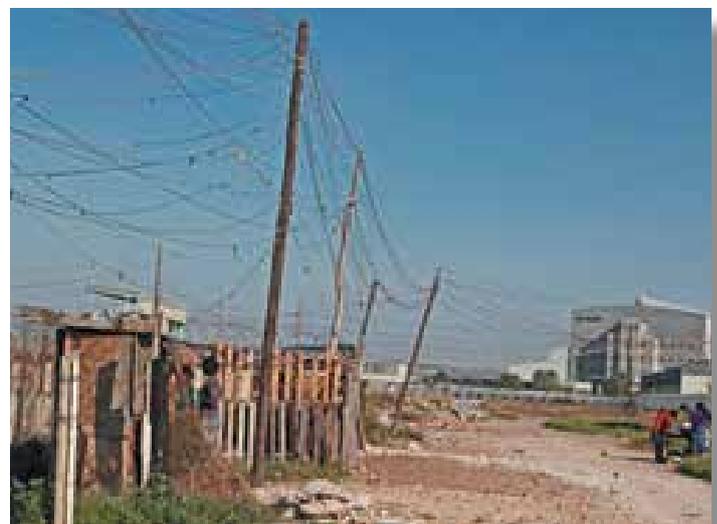
Ulolo indlu yakokwabo ingqongwe yinkunkuma kululake ukuba bafumane izifo. Kuggqabhuke ne tap kuhamba amanzi aluhlaza kukho ingcongconi bayazi kwela nokuzikwela (Lolo’s house is surrounded by dirt, which makes it easier for him to contract and be infected by illnesses. The tap is broken and green water is flowing and there are fleas and the children scratch themselves). (Rolihlahla, Lolo’s story).

3.1.2 Injustice towards nature

Racialised capitalism in South Africa has produced lives that are both economically and environmentally placed at the margins of capitalism’s main project of growth and profit-making. Capitalism’s search for ever greater access to natural resources, cheap labour and new markets to feed its need for increased profits, has also fuelled the ecological crisis. The costs of this plunder are shifted to, and ultimately borne by nature and society, with devastating effects for the earth and for poor people.

The setting of the Chatty River shows us the visibility of an unhealthy environment for people and for other living organisms. ... The economic and environmental problems [are linked] that is why there is an environmental health hazard. (Veeplaas; The Environment of the Chatty River)

The poor, hungry and exploited majority of the world’s (and South Africa’s) population, it could be argued, have been in crisis for much of the twentieth century – stripped of their land and means of subsistence, and forced to sell their labour (if they are lucky) or beg and steal to eke out an existence, often in health-threatening working and living environments deliberately placed close to the polluting waste of industry. From an ecological perspective, the natural world or ecosystem (including other living creatures) has been in various stages of crises as industrial development crowds out non-human animals, forcing them into fenced-off parks and zoos, hunted and sought for trophies, while the destruction of forests, pollution and emissions threaten the very existence of earth as we know it. The latter has only become a concern for the privileged and powerful when it threatened their own system of production and consumption – but only grudgingly, and partially.





...Capitalism, in other words, is characterised not merely by the marvels of innovation, entrepreneurship, modernisation, higher standards of living and increasing consumer choice. This is only one side of the coin, which the insiders ... enjoy. More accurately, capitalism is a system of uneven or enclave development – namely a world system comprising islands of privilege and power, surrounded by seas of alienated poverty, pollution and plundered resources. (Pillay, 2010, pp. 2-3)

One effect of this domination is not only the power of the wealthy over all physical aspects of working class lives and nature; but also the manufacture of common sense ideas that helps to main the control of the capitalist class. One such common sense idea, is of nature as a free and infinite resource. Using this 'logic', the ecological costs associated with the abuse of nature, are not considered as a form of 'unpaid' costs and are passed on. This view sees nature after all as belonging to property owners and not society as a whole.

Nearby industries also contribute to that bad smell as waste water from industry flows into the lake. Sometimes there is a effluent that comes from the industry to the lake. (Ramaphosa-Chris Hani; Bayanda's and Nosiyakulwa's Stories)

Okokuqala into endiyibonileyo izolo xa bendihambile, ndibone indlela ekusetyenzwa ngayo ngabantu abakhayo nabalungisa ezazindlu zikhiwa kabutsha. Ababantu basebenza mdaka ngoba baqhekeza ezizitena bawise amadonga bathi bakugqiba bangaqoqoshi kwaye bacocise kushiyeke kucocekile. uFika kukho ezablocks nezitena nezazindlu zemhlaba indlu nendlu ndicinga ukuba kubekho ingozi, abantu balwe bonzakalisane ngeza zitena, okanye nalamhlaba ucaphazele abantwana emehlweni nokuthi xa kuqhuma, umhlaba angene endlini nange festile. (The first thing that I saw yesterday when I was walking, I saw the way in which the building contractors and renovators worked in those houses that are being renewed. These people work in a very dirty way, because they break the bricks and collapse the walls and after they are finished, they do not clean up or leave

the place clean and neat. You arrive to blocks, bricks, and the rubble and dust from the houses. I think this can cause danger, because people fight and can harm each other with those bricks or the dust can affect the children in the eyes, and when it is windy, the dust enters through the windows). (Rolihlahla: Unfinished houses).

This 'common sense' is followed in communities living with the pressures of underdevelopment when human and household waste is passed on and dumped in the river or into wetland systems.

The common sense of ideas in the communities around the river, they just ignore the situation henceforth it is killing their lives. (Veeplaas, The joys of swimming in the river)

They are using a toilet bucket system that gets full at times especially when the municipality does not come to collect the buckets. People sometimes throw the buckets in the wetland where the cattle drink because the toilets are close to the houses and the smell becomes terrible. (Ramaphosa-Chris Hani; The story of Luzuko Dyantyi)

However, a key law of nature is that everything is connected and that there is no final end point for waste in natural systems. The waste produced



in one ecological system is recycled into another (Foster, 2012). And so the waste that enters the river and wetland systems, end up creating unsafe spaces for children, but also poisons the cattle of those who eke out a living along this system. Ma' Msimang whose family has been keeping cattle since 1976 says:

"A lot needs to be changed but there is little that can be seen because of the dirty Chatty river and the waste that is lying around which the animals end up eating – this causes indigestion. When they drink from that river they sometimes become sick...I do not know how the cows' milk has changed or whether they are breeding well – I am too old now and it is my son who is taking care of the livestock, he is the one that can notice things."

(Veeplaas: An interview ka Mam Msimang)

And a man, Thembinkosi Frans, who herds cattle along the river adds:

He told us that the cattle get injections once a month but that the cattle sometimes get sick from drinking from the Chatty River. If they get sick or are infected with any of the cow sicknesses they get injections but there is a danger that if the livestock are not checked and treated early they can die. If it dies they slaughter it and eat it, but those found dead for too long they leave there. (Soweto-on-Sea: Cattle Herding on the Chatty River)

However, it is precisely in this natural system that some community members yearn to experience again the bounty of the natural world and enjoy its healing. A community researcher talks of the pleasures associated with herding and caring for cattle:

What was inside his story was the love of what he was doing, because he knows exactly how many cattle there are including the small ones and the fact that he spends the whole day going after them and making sure that they drink and eat the grass because they were in good condition. (Soweto-on-Sea: Cattle Herding on the Chatty River)



Mzimkulu Keye talks of the simple and pure joys of swimming in the river as a boy:

My greatest pleasure and feeling to swim in the river, it was not easy to be forgotten because it was a place to make us feel happy... Always on the weekends and school holidays all the young boys would be swimming there, fighting about losing clothes and other boys stories.

(Veeplaas, The joys of swimming in the river)

Yet others recall the sacred places that the river guarded:

Umlambo masithi wawubalulekile kudala, ngakumbi kuthi bantu bamnyama. Amaziyoni ayehlanjululwa khona namagqirha, kulapho ayengxengxeza khona xa kukho okungalungile emzini kuyokunqulwa, kucelwe amandla kubantu abadala bomlambo kude kuyiwe neebhokhwe kuyongxengxezwa kulomzi kucelwe neentsikelelo. Umlambo wawusaziwa njengendawo engcwele kungavunyelwa nabantu nabantwana abadlalela khona, kusithiwa baza kuthwetyulwa babizwe ngumlambo hlambi babizwa ngumlambo baphume begrunywe amehlo nemilomo, hlambi baphume beqatywe amehlo ngembolo emhlophe (bekotiwe) emva kweentsuku ekubeni kudala bekhangelwa (The river, let's say, was relevant from long ago, especially for us black people. The Zion's and the traditional healers where purified in this river, this is where they called upon when things were not going well in the house to go and praise, where they ask for strength from the elders of the river and are accompanied by sheep to call upon and cry out to the ancestors and ask for blessings.



The river was known as the holy place where no child or adult was allowed near or to play in the river, because people had the belief that they may be ‘swallowed’ by the river and be visited by the ancestors where they might come out with blind eyes or muted mouth or their faces painted according to the ancestral symbols of spirituality. People might look for their loved ones for days as they were swallowed by the river). (Veeplaas: Umlambo iChatty River nobungozi bawo, history of Chatty River ‘82-83

Rolihlahla, or on the edges of the community as in Veeplaas and Soweto-on-Sea

The cattle graze in the place close to the dumping sites near to the Chatty River, which is infected with stagnant water, waste and all the rubbish you find. (Soweto-on-Sea; The Story of Thembinkosi Frans)

This is the ‘natural’ work environment for waste pickers like Thami Pokile, for whom *The river provides opportunities as well as hazards, job creation for women [and men] who are collecting recycling. (Veeplaas; Chatty River)*

3.2 Waste findings

3.2.1 Case Study 1 Waste pickers

In the communities of Rolihlahla, Ramaphosa, Chris Hani, Soweto-on-Sea and Veeplaas waste is a big part of people’s lives. It is not something that is simply created and removed, it is an ever present reality that shapes both their everyday decisions and their livelihoods.

For Lolo, age 5, his health is bound up in the production and distribution of waste in his community and the livelihoods of waste pickers

- Lolo has the problem of sores wounds on his head. His home is surrounded by waste; Waste that others help clear by doing recycling so that they can make a living. (Rolihlahla; Lolo’s Story)

At the yard of his house there are big bags full of different metals and glass that he sells at the recycling place. He said he receives R44 per kilo for the copper – and can do the calculations in his head. This is the only way that he can make money and put food on the table. He tells me that he started doing this kind of job in 1999. (Soweto-on-Sea; The Story of Thami Pokile)

The hard physical work of waste picking is very poorly compensated, Nyameka Booi told us that *the “money is not that good” ... She makes R200 on 4 bags full of plastic bottles and makes more on glass bottles because one bag is R150 but then she still has to pay the van that helps her transport the bags to the Recycling Company R100, so it is not so much. (Soweto-on-Sea; The Story of Nyameka Booi)*

For some people it is the only form of income generation that is available to them.

Nyameka Booi’s ...shack is surrounded by waste – metals, papers and plastic bottles - but she survives on that waste...She makes do with the little that she earns because she doesn’t want to bother her neighbour about her daily struggles. (Soweto-on-Sea; The Story of Nyameka Booi)

The concept of recycling waste, particularly in communities where waste is such a big issue, is one which has a mixed response. One community investigator remarked that *It is a good thing what Thami is doing for the environment, the community and for his family. (Soweto-on-Sea; The Story of Thami Pokile)* but for other waste pickers the community response is less positive. For Ma Booi *She says her neighbours gossip about her saying she thinks she’s better than them because she does her recycling all on her own. What she finds strange is that she says no one ever comes to her interested in joining her recycling. She said she thinks that she is bewitched because people are jealous. (Soweto-on-Sea; The Story of Nyameka Booi)*

Waste picking in these communities is happening in a context where Booi’s struggles are echoed by the struggles of her neighbours; whether it is a similar struggle for income or one for a cleaner environment which compels people to collect their waste communally on empty plots; as in areas like



For the increasing number of people who are reliant on marginal work the social and interpersonal pressures can tip into being physically dangerous.

Thami tells me that there are challenges with this type of job, and those challenges are the environment that he collects from, it is not a safe environment. There are too many people doing the same job and there are people who rob other people.

(Soweto-on-Sea; The Story of Thami Pokile)

For those in these communities who find their survival reliant on the precarious work of copper wires is one of the serious risks the reclamation of waste presents to those waste pickers who reclaim copper presents to waste pickers and the surrounding community and environment. The biological and chemical health risks to waste pickers are high especially if you don't use gloves and don't have a face mask like Mama Nyameka. (Soweto-on-Sea; The Story of Nyameka Booi).

Thami sits there and makes a fire in a tin of paint to burn old copper wire cables in order to collect the copper. He wears gloves on his hands but there is nothing covering his nose or protecting him from the gases as the plastic burns ... [The health] disadvantages that come with the smoke from the burning wire, which is a chemical hazard [will directly impact his health]. He might also get TB or get some diseases from the place that he works from. From where he is sitting you can see that this place is not a good place to be in. It is a dumping area where people dump their rubbish and old clothes.

(Soweto-on-Sea; The Story of Thami Pokile)

In this observation of Nyameka Booi's recycling work, we can see how the financial pressures increase the risks she is exposed to.

From her story I noticed the biological health hazard from the recyclable waste she collects from the dumping place; she is also at higher risk because she is not well now. The other hazard I noticed was a physical hazard because those bottles can hurt her when she is breaking them - so that the bag of glass can be heavier for her to get enough money.

(Soweto-on-Sea; The Story of Nyameka Booi)

Despite finding out that waste picking creates a variety of risks for those engaged in this work there were also many comments from interviewees and observations that suggest that people think others should embark on this livelihood strategy.

For both Booi and Pokile there was a sense of pride in the (limited) self-reliance waste picking affords them. *Nyameka said that what makes her proud of herself is that she is reducing the waste in her community and wishes that everyone who is currently unemployed can at least do what she is doing.* (Soweto-on-Sea; The Story of Nyameka Booi) When observing Pokile during the interview one investigator recorded that *The look on his face makes me think that he is happy or proud of his job, he knows the ins and outs of the business he is doing. He tells us about the places that pay better than the others and how to avoid getting cheated by the buyers.*

(Soweto-on-Sea; The Story of Thami Pokile)



When observing Pokile during the interview the community interviewer recorded Thami's pride in his work and also showed his own admiration.

The look on his face makes me think that he is happy or proud of his job, he knows the ins and outs of the business he is doing. He tells us about the places that pay better than the others and how to avoid getting cheated by the buyers...

He is able to turn nothing into something and get a means of living out of it which shows that more people need to be aware of recycling so that dumping places or sites can help reduce poverty and unemployment.

(Soweto-on-Sea; The Story of Thami Pokile)



There was clearly a strong feeling amongst community members that waste picking has potential as a livelihood strategy.

If [Thembinkosi Frans] knew about recycling he might do it at the same time he is guiding the cows; taking bottles, plastics and scrap metal to sell to increase his income so that he could get the money to go to hospital and get treatment for his hand. (Soweto- on-Sea; The Story of Thembinkosi Frans)

The work of waste picking is an important survival strategy not only for the waste pickers, but also for a community which is struggling with waste issues.

3.2.1.1 Discussion and Analysis

During our investigation in Rolihlahla, Ramaphosa-Chris Hani, Soweto-on-Sea and Veeplaas we began to see the story of waste pickers in these communities. We met them and heard about their struggles and motivations in this marginal livelihood. We observed the hazards on the ground and began to think about the relationships between the pickers, community, industry and different ways of thinking about both the environment and work.

The ways in which we think about rubbish – which local environmental activists correctly refer to as waste (something which is surplus, unused, left-over or discarded) (Tsoko, 2013) - is shaped by the ways in which we view both human society and the natural world. Much of the political and development discussion within and outside these informal (or recently upgraded) working class communities is around social justice – equal access to resources and healthy living environments. Often the proposed solution to both environmental injustice and economic inequality is the establishment of waged employment through the stimulation of the economy or the creation of entrepreneurial opportunities.

What this does not always identify or take into account is the ways in which the poor – through the development of marginal work – continue to be exploited by the very system that both created their current living environment and the high levels of unemployment which along with other marginalising structures ‘necessitates’

precarious work. This precarious work re-exposes individuals and entire communities to high levels of environmental risk but it is largely a product of spatial and service inequality in conjunction with the economic pressures which drive people into this marginal work.

In communities where waste is dealt with by effective removal – like middleclass areas of Port Elizabeth – the chances for repeated exposure to the social, physical and chemical/biological effects of waste are removed for those people but often redistributed to low income communities – as is the case historically in Ramaphosa and Chris Hani which sit on the land of former municipal dumping sites. It solves a symptom but does not deal with the dis-ease and dissonance within the deeper societal relationship between humans and the rest of nature.

Whilst the recycling of waste might help ameliorate unemployment in these communities as a strategy for income generation it is contradictory in that it is highly exploitative. The business of recycling of waste is referred to by *Reclam Group ...the leading producer of recycled ferrous and non ferrous metal products in Southern Africa based on revenue and sales volumes...as “above-the-ground” mining. Reclam Group beneficiaries basic commodities that are sold to the same customer base as that of mines. The only difference is that its raw material is a secondary or recycled material relative to “virgin” material which is benefited from an ore.* (Reclam , 2014) [emphasis added]

Reclam note that as raw materials make up an increasing proportion of overall costs, steel makers are continuously looking for more cost effective inputs, and scrap is an ideal solution.... South Africa’s recyclable ferrous metals market is in excess of 3 million tonnes per annum. South Africa’s recyclable nonferrous metals market is approximately 400,000 tonnes per annum. (Reclam)... Old rolled aluminium...[is approx.] R14,300 per tonne in Johannesburg. (Barnett, 2013)



These figures give us an idea of just how big and potentially profitable the metal recycling industry is. It is clear to see how the marginalisation of these communities, the environment that supports them and livelihood strategies are closely intertwined within the lives of Waste Pickers. What is less clear and would benefit from further investigation is the exact nature of the relationship between waste picker's livelihoods and the profits of the recycling industry. Whilst it is possible to examine the ways in which waste picking as a strategy for poverty reduction and increased employment is reliant on the continued marginalisation of both communities, individual people and the natural environment many people still see it as a good opportunity. It would be of interest to examine other ways communities are dealing with waste and other forms of business organisation which might offer better protection for waste pickers (the Brazil-based National Movement of Recycling Workers (Baraka, 2014).

3.2.2 Case Study 2 Household waste in communities

My story starts at the National road when we enter Rolihlahla village. From the start there I see the dumping place where there are plastics, broken bottles, old clothes and many things. (Rolihlahla; Qhagquwa Street)

The ways in which the informal and formal but underserved communities which we investigated, deal with household waste is significant because it has a bearing on the health, wellbeing and future of both the residents and the environment around them. We found that in many areas there is a lack of municipal refuse collection. For the residents in Rolihlahla like Solani Msokoli... *There is no service for garbage collection, no electricity and water inside the houses... He arrived in the year 1999 and has been staying there until now. He said he has no job. He lives in a dense place in an incomplete shack. (Rolihlahla; Interview at Rolihlahla village)*

The lack of waste collection in his community is also linked to other service and spatial inequalities. As a result people have to find alternative ways of dealing with the waste that accumulates. *Most of the things that are lying around the streets are household waste - papers, cardboard and the empty bottles from the area. (Rolihlahla; Interview with Munyani Mgabaza)*

Aside from general waste littering the streets much of it accumulates on community designated dumping sites. It seems as though many of the dumping sites are incidental – and the decisions to create these waste areas are not formally discussed in a meeting of residents.

For some people the dumping sites are close to home. In these stories below, we can see how a communal problem can disproportionately affect individual residents. Ultimately all residents are impacted by the household waste and the problems residents face over its disposal.

What the residents of Rolihlahla are doing now is that they are dumping waste on empty plots and creating more dumping sites. (Rolihlahla; The problem of the dumping site)...

At Rolihlahla village, I saw a soccer field that was full of domestic waste. It was no longer a soccer field, but it appeared to be a dumping site. In Soweto-on-Sea there were physical hazards which we found at the dumping site next to the big danger box [electricity transformer] on Fidel Street where old tires, kettles, buckets, chairs, old mattress, crates, plastics, boxes...grass and nappies [were dumped]. A lot of it comes from households. (Soweto-on-Sea; Waste notes)

This is the problem faced by Nomvula Ndabane who lives in 2VTO 255, Rolihlahla. *...There is a dumping site in front of their yard which forces them to close the door due to the bad smell. (Rolihlahla; Dumping site in front of yard). Another resident in Rolihlahla Munyani Mgabaza is living with his wife and 3 children... They have problems with the dumping site that is next to his house and the rats and mice that are coming from the dumping site.... Dumping and littering attracts rats and mice which will cause illnesses like skin rashes. (Rolihlahla; Interview with Munyani Mgabaza)*

Aya Mthongana residing at VV090 Street Rolihlahla is also affected by a dumping site. *He has lived here for 15 years. Living in an informal settlement, he has a problem that the community has a dumping site that's meters away from his house but it is surrounded by many other houses too. (Rolihlahla; The problem of the dumping site)*

Open spaces left by relocated people [in informal settlements] are a health hazard to the community. Those spaces are dirty and unsafe for children to play. (Ramaphosa-Chris Hani; The story of Luzuko Dyantyi)



Within communities the burden of waste has the biggest impact on children who rely on the spaces used for dumping as spaces for playing. We found repeated cases in these communities where children were playing on waste tips or similar sites or where parents and neighbours expressed concern over the proximity of the waste to their children. For Aya Mthongana *His biggest fear is the weight of all the dead animals and nappies that are thrown there because the children play there and at the end of the day they get sick from playing there.* (Rolihlahla; The problem of the dumping site)

Even for those children who don't play on the sites they and their communities are affected by the problem.

One investigator exclaimed: *"I've seen with my eyes how big that dumping site is – it is huge and stinks."* And reported that, *"The school children pass there every day when going to school and they always have to cover their mouths when passing there. The smell of the dead dog was unbearable."* (Rolihlahla; The problem of the dumping site)

In each area there were stories of children being impacted by the ways in which the community is forced to deal with their household waste. One investigator wrote about the Hill of Waste -

My Story is about 3 boys that I met at the hill of waste, the boys are between the ages of 5 and 7 years...We asked why do they like to play there when it is an unsafe place? Both of them they told us that they don't have any other place to play. They said that it's fun to slide on that hill with plastic sheets and they even use a bumper from a car to slide. We asked them if their parents can find them playing on that waste? They reply saying - their parents will say nothing, they cannot stop them from playing there in that moment. They know they are not at school, they play on that hill. (Veeplaas; The story about 3 boys)

For these boys a lack of safe spaces to play has resulted in them creating their own games in unsafe places. Part of the fun is the risk involved, along with the children's defiance of their parents. Whilst it appears that these boys are out of school it is not only those who play outside of education environments who are exposed to waste and its effects.

During our Community Transect walk we spoke to Funduzufe Pre School principal Ms Swartbooi who talked about different pollution problems, a dumping site and the Chatty River which is also close to the school. The principal has been dealing with complaints from parents for the past 4 years. The main complaint was against the air pollution from a dumping site that is 10 feet from the Funduzufe Pre School. The community burns the waste and this causes a sickly grey cloud of smoke to waft over Funduzufe Pre School. Ms Swartbooi said a number of children had fallen ill since the cloud of smoke started blowing across the property. The fumes, smelling like paraffin, have been so bad at times that the kids have to play inside the classrooms instead of playing outside during the break times. The smell from the waste before it is burned and the smoke creates an unhealthy environment which is both a biological and a chemical hazard. (Veeplaas; Funduzufe Pre-school)

This burning of waste has almost become a necessity in some areas. As the waste accumulates – so too do the physical, biological and animal hazards increase. The burning of waste on a periodic basis has been one of the few effective measures for reducing the waste. Unfortunately it also creates a huge chemical hazard which affects the health not only of children but everyone.



For Nosisi Masiza living where household waste is uncollected and often burnt, *"her life and health [is] at risk, because she faces a lot of environmental challenges such as the biological hazards as she breaths in germs from the waste and also chemical environmental challenges as she is exposed to the smoke when they decide to burn the uncollected waste. That smoke can lead to health problems such as T.B.; asthma and some other similar diseases.* (Rolihlahla; The story of Nosisi Masiza)

The vulnerability of residents like Nosisi and Velile Landu to the chemical and biological hazards that permeate their communities is further complicated by the same spatial inequalities which fail to protect marginalised groups – women, children, the unemployed and ill. Velile Landu *described how when it is windy he inhales dust and as someone who has got TB he gets very sick easily sneezing and coughing. His house is close to the stagnant water which is near to the dumping site in Zinyonya street.*

(Soweto-on-Sea; The house on Bafana St)

Some of the investigators concluded from their observations that the way people are dealing with waste shows that they don't care. Others thought, a solution to some of the waste issues, is recycling.

It is an open space and on the right hand side there is a soccer field where kids play. But community people still dump rubbish out there. They do not care about the environment.
(Soweto-on-Sea; The Story of Thami Pokile)

If all people can know about recycling and reduce the usage of plastics, that can improve the standard of living in our societies, improve human wellbeing and social justice while significantly reducing environmental risks to all living things in relation to each other and where they live (ecological [spaces for living]).
(Veeplaas; Joy to swim in the river)

3.2.2.1 Discussion and Analysis

Examining the issues around household waste in community we can see that waste is a big issue which is made persistent by a lack of refuse collection. The impact of this waste is compounded when communities attempt to deal with the issue by burning the waste. This chemical hazard along with the biological and physical hazards associated with community dumping disproportionately affects children in these communities.

Whilst the ways in which community members attempt to deal with the problem of waste made some investigators believe they *do not care about the environment.* (Soweto-on-Sea; The Story of Thami Pokile) this conclusion needs to go beyond the surface of people's actions to examine the pressures faced by communities and the availability (or lack thereof) of suitable ways to deal with household waste.

In some areas, particularly near the Chatty river in Soweto-on-Sea and Veeplaas the dumping of household waste has been accompanied by the dumping of industrial waste – including car parts and rubble. We can see how the lack of effective services to deal with household waste might be contributing to illegal dumping by industry. A closer look at the relationship between community housing developments, use of marginal land, and increasing costs of waste disposal for both industry, government and nature might help us to understand these issues within these communities.

Recycling within communities as a way of dealing with some of the waste might be seen, as it was by the investigators, as a solution. Whilst this may provide part of the answer we must also examine the whole waste cycle. Where exactly is this household waste coming from? When we analysed the photographs that were taken during the transect walks we can identify that much of the domestic waste is from high energy (high sugar and fat) foods which are disproportionately marketed and sold to low income communities and which the UN has linked to the “double burden” of disease – malnutrition, and obesity. (FAO (UN), 2006) Looking at waste – we can see that industry adds a significant third health burden through the packaging it produces, particularly





when the packaging is burnt or is plastics that accumulate in landfill and waste dumping sites. It is also worth noting that the incineration of waste is not only an ad hoc community solution to waste but one which is part of a range of 'acceptable' waste management strategies employed by local governments.

The internationally accepted hierarchy of preferred waste management options.

1. *Prevent and minimise the generation of waste,*
2. *Re-use waste,*
3. *(Recycle or compost waste,*
4. *Incinerate waste, utilising heat and energy production,*
5. *Treat [read incinerate] waste with no energy recovery,*
6. *Landfill waste.*

(NMMM, Environmental Services;, 2005, p. 9)

The Nelson Mandela Metro acknowledges that there is *little information on the types of waste treatment [(as opposed to landfill dumping)] available and being used in the Metro, nor of the risks or consequences of these treatment options. One form of waste treatment that the NMMM is aware of is the incineration of medical waste at hospitals and clinics. It is suspected that the incinerators are of inferior quality and given low maintenance, resulting in air pollution.* (NMMM, Environmental Services;, 2005, p. 34)

Further investigation and analysis should look at the complex ways in which waste issues in communities intersect with other forms and effects of marginalisation.

3.2.3 Case Study 3 Waste and the local government response

For communities like Ramaphosa and Chris Hani, the municipality's approach to waste has a historical element that goes far beyond current service delivery issues. The transition of the use of this land from waste disposal to housing was one which was not sanctioned by local government.

The area called Ramaphosa started in 1994 and Chris Hani in 1999... This area was a municipal land fill long before 1994 and in 1999 it stopped being used as a land fill because people complained about the smell and the health hazards it causes... People living in this area have invaded the land illegally. The municipality tried to stop the people from invading the land but people refused to be stopped. (Ramaphosa-Chris Hani; Living on a Land Fill)

Land invasions on unsafe land presents a problem for how local government deals with service delivery; however, government's attitude to both waste and community members appears to be the same across different communities.

In Ramaphosa the municipality was entirely complicit in the use of central city land for a land fill. Ramaphosa kwakuyindawo yokulahlela khona inkunkuma ziinkampani ezahlu-ka-hlukeneyo kwaye namacandelo karhulumente. (Ramaphosa was a place where rubbish was dumped by different companies and government departments).

In Veeplaas the dumping of industrial waste is connected to the activities of local government too. When we met one family in Veeplaas we observed that around the house and a few steps away there were dunes of rubble... We were told that it...is dumped by the project that renovates the RDP houses in another area of Veeplaas. (Veeplaas; Family lives in one room)

Around the issue of household waste that accumulates in these communities, due to infrequent collections, we heard that in Rolihlahla the *...municipality comes once every 2 months to come and fetch the waste. If the truck is full they will leave it and come after 2 months again.* (Rolihlahla; Since 1999...)



Mthongana describes another area of Rolihlahla.

waste has been there for 4 years and that the municipality only collected the waste once. They have been promised that the problem will be solved but for the past 4 years still nothing has been done. (Rolihlahla; The problem of the dumping site)

The persistence of this problem is something which became very clear to us during our investigations. We heard the frustration in peoples voices, the daily struggles of living in an area where local government is unable or unwilling to deal effectively with the problem.

Mthongana...told us that a lot of times we ask the Municipality to do something about this dumping but they always make empty promises, so we gave up on the municipality. (Rolihlahla; The problem of the dumping site).

In Ramaphosa-Chris Hani, residents are trying different ways to deal with the issues between rubbish collections.

They are using plastic bags for the rubbish not bins and all the rubbish gets kept in an unused shack between infrequent municipal collections. (Ramaphosa-Chris Hani; The story of Luzuko Dyantyi)

This helps prevent animals from destroying the bags and the wind from blowing the waste through the community. Whilst it is a clever solution to aspects of the problem the waste remains.

A community investigator reflected. that The officials fail to solve the complex technological and environmental problems, but they are aware of the situation people are living under. (Veeplaas; Joy to Swim in the River)

We did hear of and see an initiative in Veeplaas, instigated by the strong voices of community members. This galvanised the local government to attempt to deal with dumping and household waste in their community.

Ms Swartbooi said the community members and the Nelson Mandela Bay Municipality had started a project around the Metro to stop the problem of many dumping sites near our communities, include our community in Veeplaas. The aim of the project was to create more jobs for people but not permanently just for 2 to 3 months per person to try to reduce the issue of many dumping sites in our community.

(Veeplaas; Funduzufe Pre-school)

We saw a lot of evidence of municipal cleaning crews – part time work provided by Environmental Public Work Programmes and the Community Work Programmes. These did seem to be trying to contain some of the worst effects of the waste being dumped in public spaces. However residents still asked for waste collection that is the norm in middle class suburbs. They said:

The municipality should come every Friday to collect the waste and provide black plastic bags to put the household rubbish in.

(Rolihlahla; Since 1999...)



This story reflects that in our communities we have poverty. It is not a healthy environment and there is no environmental justice for the people living there. (Rolihlahla; Interview with Munyani Mgabaza).

One Investigator said:

It seems to me that the voices of the people of these areas are not taken into consideration. (Veeplaas; Joy to Swim in the River).



Another community member felt government had a responsibility.

but that ...the solution to this challenge is to organise the things that they don't have from the government. (Rolihlahla; Interview with Munyani Mgabaza)

Maybe the ingenuity of Ramaphosa-Chris Hani, the agency of Veeplaas and the mobilisation of Rolihlahla and Soweto-on-Sea will be enough to tip the balance between communities which face marginalisation and a local government that responds to community action around waste sensitively and effectively.

"Together we can do more...We can do more together" (Veeplaas; Funduzufe Pre-school)

3.2.3.1 Discussion and Analysis

Waste as an issue in Rolihlahla, Ramaphosa-Chris Hani, Soweto-on-Sea and Veeplaas is closely linked to the ways in which the municipality are responding to the problem. There seem to be several factors which are impacting the effectiveness of the local government response to waste.

One thing which was highlighted by our examination of waste in communities was that there is a clear link between waste, poverty and the marginalisation of particular communities. Some of this can be attributed to the Apartheid spatial planning policy of racial zoning of African low income housing in industrial areas of the city; along with the placing of municipal waste transfer and dumping sites within these zones.

The Arlington site is the larger of the two municipal sites and is situated near Walmer Township on the outskirts of PE and the Aloes High Hazardous and General Landfill ...is one of only three High Hazardous landfills in the entire country. (NMMM, Environmental Services; 2005, p. 34)

Hence the observation by a community investigator that:

the officials...are aware of the situation people are living under (Veeplaas; Joy to Swim in the River)

This observation is confirmed in part by this extract of the NMMM Integrate Waste Management Plan 2005-2010 (the most recent municipal plan available) which refers to waste picking activities at Arlington a privately contracted municipal dumping site.

A large number of informal recyclers work on the site in very poor conditions, where they search through incoming waste after recyclable materials that can be sold to recycling companies that collect nearby. Food that they come across is also consumed at great risk to themselves. (NMMM, Environmental Services; 2005, p. 34)

This activity is still being practiced in Ramaphosa-Chris Hani where the dumping site has been closed for many years. *People of this community are unemployed. Some of them are digging for metal from the landfill... (Ramaphosa-Chris Hani; Living on a Landfill)*

It could be suggested that the ways in which spatial and social inequality are maintained are partly within the control of municipal policies. And the extent to which the voices of the communities we visited are heard in decisions around waste – and other issues that affect them - is directly attributable to the depth and coherence of our democratic processes.



4 RECOMMENDATIONS

4.1 Critical Ecopedagogy

Here are some recommendations for how a Critical Ecopedagogy should underpin a curriculum on Environmental Health and Waste. In constructing this participatory curriculum we should –

- Work to understand the structural causes and interrelationships between inequality and injustice to both humans and the earth.
- Try to look at ‘wholes’ and the interplay of relationships in the hope that this will enable us to understand the complexity of the issues we are learning about and imagine and create critical and useful alternatives.
- Find ways for community voices to be heard both within and across working class areas and outside these communities.
- Work purposefully within the 5 areas but also across them and with a wider global perspective.
- Work in active and thoughtful ways to understand, educate and change the unjust environmental conditions.
- Encourage and facilitate mother tongue and multi-lingual literacies.
- Make space for creative expressions of people’s experiences through the use of theatre, art, music and creative writing.
- Work in a way that is humanising – that develops the interests and dreams of both learner-educators and educator-learners.
- Encourage people to work together and make links between areas and organisations on key areas of study/action.
- Increase our ability to think critically about our own beliefs, our communities and our world. (“Reading the world and the word” (Freire, 1985))
- Increase our confidence in a variety of literacies (environmental, written, auditory, linguistic)

A Critical Ecopedagogical approach would -

- Provide *focused [learning] and political action on the ways in which environmental degradation results from fundamental sociocultural, political, and economic inequalities.*
- Seek to learn from the *ideas, values, and practices of the world’s indigenous peoples*
- Challenge the anthropocentric view of the relationship between nature and society with the aim of generating a social and environmental, justice-oriented approach to environmental issues.
- Incorporate discussions on the *intrinsic value of all species, the need to care for and live in harmony with the planet, as well as the emancipatory potential contained in human aesthetic experiences of nature.* (Kahn R. , Critical Pedagogy, ecoliteracy and planetary crisis: The Ecopedagogy movement, 2010, p. 19)
- Seek to make educational and action based connections to grassroots political groups

4.2 Further areas of study

Following on from our investigation and emerging analysis we can begin to identify several areas within environmental health and waste which might benefit from further investigation as part of a community based participatory curriculum on Environmental Justice. The recommendations below are examples of areas of study which could be incorporated into curriculums on Environmental Health and Waste. It should be noted that there is likely to continue to be overlap between these learning areas.

This investigation has shown us that:

The issues around environmental justice require that we must wake up and see what [waste in] the river means for human security, human welfare in the face of the clear and present danger we are facing in our communities.
(Veeplaas; Joy to swim in the river)

There are many possibilities and we should be guided by the needs of community and interests of the learner/participants.



4.2.1 Environmental Health

4.2.1.1 From Findings section 3.1 Unequal distribution of harm and resources

- Document the history of our communities, including but not limited to spatial planning, migration and settlement patterns.
- Clarify the current situation regarding municipal plans for informal areas (Ramaphosa-Chris Hani, Rolihlahla and areas of Veeplaas).
- Gather concrete data on health risks associated with living in informal areas and understand how this fits into other urban risk factors and differences between urban communities.
- Learn about power relationships in communities – particularly those that govern space and access to services. This would include understanding both formal and non-formal community structures.
- Look for and create skills and spaces for community dialogues on environmental health issues and related social issues – with the aim of combating myths about scarcity and to encourage collective participation in solutions to community struggles.
- Look for concrete potential for community spaces that creates safer spaces for children to play.
- Think about how to work more with youth and children in communities.

4.2.1.2 From Findings section 3.2 Injustice towards nature

- Investigate the nature of neo-liberal capitalism and its personal, local and global impacts on nature.
- Critically examine “common sense” views about nature, the economy and society
- Understand the issues around natural resources, extraction, consumption and their consequences – climate change,

environmental contamination and ecosystem collapse

- Examine critically “green” solutions through the development of media literacy.
- Look at environmental issues through a social justice lens – create a coherence between these connected struggles.
- Learn about and construct a philosophy of nature that challenges existing ways of thinking and behaving in relation to other people and the environment.
- Learn about the economics of nature – nothing is made or destroyed...
- Explore the link between indigenous knowledge of nature and a way forward for urban communities.
- Explore our understanding of the environment (in peri-urban and urban areas) as healthy, healing and spiritual spaces.

4.2.2 Waste

- Deepen investigation into people’s relationship to household waste and their views on how they relate to the environment and nature.
- Investigate the links between the ways in which communities deal with waste and the involvement of individual community members; as waste pickers and in the cycle of waste.
- Examine the social and cultural norms associated with human needs and the environment.
- Examine the municipal by-laws relating to waste as part of a “Know your Rights” learning area. This potentially including a more detailed investigation into the current situation in Ramaphosa-Chris Hani through a workshop on the Closure, Rehabilitation and End Use plan; for these dumping areas. As per the NMMM, Environmental Services; 2005, annexures p.21.

- Make an investigation into and community action on the policy of local government to distribute basic municipal services, like refuse collection, unevenly.
- Explore the development of a community designed Plan to meet the the national goal of Zero Waste by 2022, which the government says: necessitates a ban on the disposal of organic materials at landfill sites... and require[s] the implementation of a separation of organics from domestic refuse source. (NMMM, Environmental Services, 2005, p. 43)
- Discuss how this might be achieved and how would it impact on people's experiences of waste in their communities?





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