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Problematising Adults-Students pro-environmental Behaviour in Nginda Ward of Embu North Sub-County, Kenya

Author
Francis Rutere Njeru
St Paul's University, Kenya
Author Email: francisrutereone@gmail.com

Abstract

This research examined pro-environmental behaviour between adults and youths in Nginda ward, Embu north sub County. The research relied on two theories, theory of planned action and theory of pro-social behaviour. The research followed a descriptive design. Data were collected using questionnaires with closed and open-ended questions. The researcher administered questionnaires in person, and filled the entire questionnaire according to the participant's responses. In total 245 participants comprising, 124 adults (comprising men and women), 121 form three students drawn from Muvandory, Rugumu and St. Alphose day Secondary Schools, and 58 standard seven pupils from Rugumu, Muvandory and ST. Francis primary schools were involved in the study. Descriptive statistics were used to summarise data and compare responses between groups. Differences in pro-environmental behaviour between adults and school children were examined to determine if the differences were statistically significant. A total of fourteen environmental problems were mentioned by participants to be prevalent in Nginda ward. The top three environmental problems mostly mentioned by participants included deforestation, water pollution and air pollution. The findings of this research can guide interventions by government and donor agencies seeking to mobilise and engage participation by both students and adults to combat environmental problems in Nginda ward. Future studies are needed to find out whether the scale will produce similar result in other group in this community which include business community, factory workers and eatery owners

Key Terms: Environmental sustainability, Pro-environmental behaviour, Environmental education

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Introduction

Environmental degradation has become a matter of concern globally. According to Moyer (2015), the world is undergoing great environmental stress due to global warming, climate change, ocean degradation, deforestation and loss of biodiversity. According to the United Nations Development Program (2012), 24% of the world population lives in poverty due to degradation of the environment. Reversing environmental degradation is among the top agenda in the sustainable development goals 2030, namely goal number thirteen that aims to ``to take urgent action to compact climate change and its impacts," and goal number 15 that aims `to protect and promote sustainable use of terrestrial ecosystem, sustainably manage forest, compact desertification and halt and reverse land degradation and halt biodiversity loss," (UNDP, 2012). Environmental degradation has far reaching implications especially among the marginalised populations, women and children. Continued pollution of water sources means that women have to trek long distances in search for the precious commodity. Deforestation reduces the time for women to do other productive work, as women have to spend more time looking for firewood. Scarcity of firewood and water resources takes a lot of time thus increasing poverty (Blackden, & Wodon, 2006).

Upwards trends in desertification, soil erosion, global warming and emission of greenhouse gases, to loss of biodiversity pose threat to socio-economic development and livelihood of millions of world population especially in third world countries. Worldwide greenhouse gas emissions are on the rise posing threat to human health and potentially exacerbating climate change. Global warming has expanded malaria endemic regions; hence prevalence of malaria which is a leading cause of death in some countries was on in (IPCC, 2014). According to Bladimir (2015), air pollution was a leading course of infant mortality death due to asthma and other related diseases. On the other hand, deforestation causes soil erosion which leads to water pollution and as a result, aquatic life is affected.

According to Pfeifer et al. (2012), Africa population explosion and the increased demand for wood has caused deforestation which in turn increases carbon emissions in the atmosphere. Between 2001and 2009, 9.3% of protected forests were destroyed which is 17,167km^2. Loss of forest cover is attributed to cultivation, demand for grazing land, timber as well as places for settlement for the growing population. There has been a rise in efforts to mainstream environmental education. The number of non-governmental organisations working to address environmental degradation has risen significantly during the last ten years.

Kenya has not been spared by the rising trends of environmental degradation. The country has continued to experience upwards trends in overpopulation, deforestation, water pollution, inappropriate technology, air pollution, soil erosion, overgrazing, loss of biodiversity and global warming. According to a report by the country's National Environmental Management Authority (NEMA, 2016), the country experienced 14.8 million cases of air polluted sickness increased in 2016. Population and industrial growth have been reducing land for settlement and food production. For instance, Taita Hills has lost 98% of its indigenous forest through deforestation. Most of the country's water resources are diminishing hence threatening livelihoods particularly in rural areas.

In Embu County, drivers of environmental degradation include Kathangariri tea factory located in Nginda ward which consumes an estimated 1,200,000 cubic meters of wood fuel to process tea leaves per year (Lagat, 2015). This fuel was purchased from the local community. Because majority of the rural residents are poor, majority are involved increased the sale of firewood and charcoal for

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livelihoods. Consequently, these activities have led to soil erosion. Moreover, runoff from the tea factory is a major contributor to pollution of streams and wetlands, while emissions from the factory contribute to air pollution. Rising trends in urban centres and towns in Embu country have further accelerated the use of wood since they use charcoals and wood fuel for cooking. Biomass usage accounts for over 92.2% of energy source in Embu County. All these degradation remains pervasive despite efforts by the national environmental management authority to educate people on the need to conserve the environment.

Nginda ward has continued to experience worsening environmental degradation during the last ten years. This poses a huge threat to socio-economic development and growth of the people in this area. Deforestation and water pollution, pose threat to the livelihoods of thousands of people living in the ward towns and rural areas. Women and children suffer disproportionately from the consequences of environmental degradation. Kenya's 2010 constitution has anchored public / community participation as a core pillar for ensuring better governance, accountability, transparency, and also effectiveness in combating environmental degradation. Few studies have been conducted to examine why environmental degradation has persisted in Nginda ward despite opportunities for communities to self-organise and confront these problems. In particular, there are very few studies that have investigated rural communities' environmental attitudes and pro-environmental behaviour, which are key to mobilising community participation. The researchers aimed to fill this knowledge gap by investigating environmental knowledge, attitude and pro-environmental behaviour in Nginda ward in Embu county Kenya.

LITERATURE REVIEW

Theory of planned action

This theory was put forward by Ajzen and Fishbein (1980) to explain how to measure and compare attitude and behaviour which seemed difficult in the previous study. According to Ajzen and Fishbein, for one to measure the relationship between behaviour and attitude he/she must measure attitude towards a specific behaviour. To them, human beings adapt behavioural practices based upon the available information and not necessarily by unconscious drive or influential desires. Behaviour is not determined by attitude directly, but rather attitude influences behavioural intention which leads to actions. Actions are not only influenced by attitude, but also by social pressure. Behavioural outcomes are shaped or mediated by normative belief.

Pro-social behaviour model theory

This theory is used in analysis and explanation of factors leading to pro-environmental behaviour. According to this theory, selfish competitive oriented people are less likely to behave pro-actively on environmental issues. Therefore, it is unlikely that selfish competitive integrated people take into account environmental stewardship in their day-today decisions but rather are driven by greed to exploit resources for their personal gain. Thus, this theory sheds right on how to understand pro-environmental behaviour of different social groups within the society.

Relationship between environmental attitudes and pro-environmental behaviour

Pablo et al. (2015) while investigating on human environmental system knowledge in relation to environmental behaviour reported that any programme that will successfully identify and address the environmental issue effectively must consider the environmental conservation knowledge of the community. He found that general knowledge of ecosystem and factors

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influencing interrelationship between nature and micro-organisms do not appeal to local stakeholder.

The general knowledge which they called geography knowledge focuses on world problems. This did not influence human behaviour in any way. On the other hand Frick, Kaiser and Wilson (2004) while investigating environmental knowledge and conservation behaviour discovered that sustainable environmental conservation requires deep knowledge and practical action, knowledge which changes behaviour therefore influences action. Theoretical knowledge does not influence behaviour change towards environmental conservation (Pablo et al., 2015). Understanding nature functioning only reduces degradation while knowledge of how human affect the environment is more efficient and leads to solving environmental problems.

Bermudez et al., (2015) has investigated the effects of policy on deforestation and reported that policy was a factor leading to the land management plan control measure, issuance of license and inspection while using sustainably rehabilitating the deforested land. Also, civil society, special agencies, municipalities, other stakeholders and federal government teamed up to implement the policy. The authors noted that the economy of Brazil in the affected region affected deforestation thus the provision of rural credit reduced deforestation by 15%. However, policy without knowledge was found inadequate to address environmental degradation. Participation in grass roots environmental conservation is pegged on many factors. According to Shandra et al., (2008), women in NGOs played an important role in environment and development. The role assigned to gender influences the environmental degradation, for instance, deforestation. Most of the time women's levels of income and daily chores are affected by deforestation. They noted that women are responsible for management and maintaining of the natural resources. They also noted that the level of education influences women environmental conservation. Women in politics participated in passing bills to protect the environment. They also participated carrying out research to ascertain the effects of environmental degradation on gender and political affairs. Shandra et al. (2008) further found out that women contributed finances, political assistance and planted trees at a local level (Maathai, 2006). In addition, women prepared, planted and sold seedlings which earned them income. While these seedlings were distributed free to groups and individuals willing to plant thus combating deforestation. Women were able to advocate for afforestation through NGO empowerment and through social groups. On the other hand, media played a key role in highlighting and exposing effect of degradation which leads to lobbying at grass-root organisation for conservation.

Moyer (2015) has further explored the impacts of Christian faith in enhancing environmental sustainability. The author argued that grass-root activities can rehabilitate the degraded environment. The Rocha Christian organisation engaged Watamu community off the coast whom were reported to destroy the forest because of poverty. Thus, the community was empowered economically by being encouraged to start trees nurseries and giving the bursary to secondary school students whose parents deforested Arabuko-Sokoke forest. The organisation also educated all the schools around the forest on environment conservation. They also partnered with wildlife clubs of Kenya, nongovernmental organisations and donated to community activities such as tree planting and beach cleaning. The parents who were sponsored with school fees were involved in tree planting, tree nursery preparation, conservation agriculture and parents were required to refrain from illegal deforestation. After a period of time, the research found that the community appreciated the environmental value. (Sinclair, Collins, sparling, 2011).

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Review of literature there identifies that there is paucity of research that has focused on attitude and pro-environmental behaviour of the communities as key toward environmental conservation. Some scholars have highlighted participation that is motivated by external intervention. Very few studies exist particularly on rural parts of Kenya such as Nginda ward in Embu north sub County. Achieving environmental sustainability demand teamwork and participation approach from all stakeholders and change of attitude from all sectors.

METHODOLOGY

The research used descriptive design. The target population was composed of 410 households and 405 high school and class seven students spread in 15 villages in Nginda. The total population was 815 out of which 30% was sampled from each category as key respondent through simple random sampling as sample size. These were key respondents who were affected by the impact of environmental degradation but also key in conservation drive. Nginda ward has 410 household and a three days secondary and three-day primary school with 405 students. Household sample was selected from register obtained from social worker in the ward while students and pupils' sample was selected from school register from head teachers. The data collection instrument was piloted with a sample of 15 participants to ensure reliability and validity of data collected. Reliability was obtained through running the data on SPSS scale until required threshold of 0.7 and above was obtained. Closed ended questions were supplemented with open ended questions to ensure additional perspectives from the participants. Participants' pro-environmental behaviour was measured using three variables, namely participants' willingness to support current and potential conservation policies, and participants' willingness to volunteer and participate in various community-based conservation activities. The Cronbach's alpha value for the 15 statements measuring participants' willingness to support current or potential government conservation policies was 0.74. Descriptive statistics were used to summarise and compare responses between groups. Inferential statistics (MANOVA) were used to examine if differences in pro-environmental behaviour between adults and school children were statistically significant.

FINDINGS AND DATA ANALYSIS

Pro-environmental behaviour: willingness to support current and potential government's conservation policies

Measurement of participants' pro-environmental behaviour was further measured using response to fifteen statements posed on willingness to support current or potential government conservation policies, based on a scale of 5 = completely willing to 1- Not willing at all were used to measure participants to volunteer and participate in community conservation activities (overall score range, 15 - 75). The Cronbach's alpha value for the 15 statements was 0.74, (mean4.13 ± 0.67SD). A high score means an individual was completely willing to support conservation policy.

A government ban on plastic bags

The study indicates (85.5 %) adults were completely willing to support the government ban on a plastic bag. To let go behaviour is hard despite the havoc the bags have caused on environment, 10.7% of young people were not willing to let go. Nevertheless, majority of adults were willing to support. Probably adults had seen and experienced the effect of plastic bag on soil and animals and therefore were willing to support the government. The young people also had some experiences on plastic probably that they caused dirt that increased their work. Interventions to improve plastic ban in this area may need to incorporate women in the projects so that their needs and interests are taken into account when assessing the need and designing projects.

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Support government policy ban forbidding people from washing clothes in streams, rivers, and lakes.

Most of the adults, (77.4) % were completely willing to support the policy. From the responses, the study indicates that there was washing of clothes in the rivers. This was an observable vice which most of the adult were willing to support the government to finish. The adult had a positive attitude towards clean water that was why they were willing to support the policy.

Support government policy ban (forbid) people washing cars, vehicles, in Stream Rivers and lakes

From the analysis of the posed statement, majority adults (76.6%) were completely willing to support the government. This notwithstanding (25.5%) of young people indicated unwillingness to support. The effect of water pollution is felt by everybody and from the graphs above it was named as the most pressing environmental problems in Nguviu sub-location. Probably adults were more involved with water activities thus they were able to observe this bad behaviour. On the other hand, vehicles and cars were owned by adult thus they were able to observe what their peers were doing. This was a positive attitude toward change. Adults were not biased in supporting their friends. Mitigation should focus on both adult and young people.

Support government policy to encourage as many young people as possible to start selling firewood to overcome unemployment because of there just too many trees.

Amazingly, young people (45.5%) completely unwilling to support their age mate in the selling of firewood for job creation while (49.2%) adult was together with them. Thus, from study probably they have learned the impact of deforestation thus their conscience was straight they cannot support it. On the other hand, the findings were consistent with the results of open question which indicated deforestation as the second most pressing environmental issue in Nguviu sub-location. The finding was in line with Bladimir (2015) who, while investigating on environmental knowledge, attitude and behaviour on youth discovered that students were aware of world environmental problem. However, the responses were just too low. Thus, for full support of the policy government will need to include both young and adult in their strategies on discouraging tree harvesting for job creation.

Support government policy to encourage the school to use charcoal for cooking for student/pupils, this is cheap and there just so many trees

It was sad to find (50.4%) majority of young people supporting the use of charcoal in school while (24.8%) were completely unwilling to support. It appears young focused on their well-being and forgot the effect on environment. To adults this will be a market opened for their product thus this probably triggered the above result. To young people, it was sad. However, the finding has gone contrary to the earlier results. The policy will be effective if all stakeholders would be involved.

Carrying eco- friendly bag when going shopping to support the government ban on plastic bags

The result of the above statement indicates willingness to support a ban on plastic bag. Out of 124 Adults, (70.5%) were completely willing to carry bag as stated above while 69.9% young people were in support. Looking at this percentage, they reveal total support from both groups. When we look further, 15.6% adults and 9.8% were partly willing. The plastic bag has been a controversial problem and having such a number willing to support was a positive attitude and pro-conservation towards environmental conservation. The probable possibility of the above result may be an observation of pollution that plastic bag had caused on the environment. Mitigation, therefore, will be effective if all stakeholders' concerns, aspirations and needs will be put into account.

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Support government policy to fine people (make them pay money penalty) who wash cars, vehicles in-stream river and lakes

The respondent support on the statement was washing cars in Streams, River and lake were rated as follows, (58.1%) adult were completely willing to support the government as per statement while (19.8%) young people were completely unwilling. The result indicates some pro-environmental conservation willingness. Although young people were reserved in supporting the government to end the vice, it may be possible that they earn from it through car wash during free times. Thus, they were shy to indicate their support because it will mean close of business. Any intervention will require the inclusion of young people so as to put their concerns into considerations during project implementation.

I would support government policy to fine people who were cloths in Streams River, and lakes

Most adults (56.5%) had a high wiliness to support the policy. However (19.0%) young people were completely unwilling. The effect of dirty water is more on adults and at the same time, majority of them are involved in the business of washing clothes in the water bodies named. This may explain why there was high wiliness than young people. The (19.0%) may be those who were involved in the washing thus they could not support the policy which would later come to haunt them. Nevertheless, adults had a positive attitude toward supporting the policy. During intervention process focus should be directed towards young people.

I would support government policy to fine people who are caught pumping water from streams, river, and lakes for irrigating vegetable, crops, without a permit

It was amazing that (16.5%) of young people were not willing at all to support the policy. Most of the respondent from the social demographic characteristic indicated that they were involved in agriculture and business. Therefore, young people were not willing to cut the hand that feeds them. On the other hand, adults hold on irrigation to feed their families during dry period thus supporting it would mean loss of daily bread. Mitigation measures will need to focus on the unwilling lot to gain the full support of the entire policy.

I would support government policy to fine construction companies caught obtaining water for construction from streams, river, and lake without a permit

Young people knowledge, attitude and willingness to participate on environmental problems was good. However, (19.8%) were completely unwilling to support this policy. The percentage was significant in such a statement which was self-explanatory young people in Nguviu sub-location indicated some reservation in supporting this policy. However, the propitiation of unwilling was insignificant in comparison to the willing. Nevertheless, less intervention will require focusing on the young people so as to change their perception toward supporting the conservation in this area.

I would support government ban forbidding cutting trees for charcoal

A significant percentage of adult (84.7%) was completely willing and partly willing to support government policy forbidding cutting trees for charcoal. This notwithstanding, 24.8 percent of young people were completely unwilling. Deforestation was rated the second most pressing environmental problem in Nguviu sub-location in the graphs above. The rating appears changed in this. Young people indicated low rating despite being high on the graphs. The connection between the cutting of tree for charcoals and deforestation appears to have been lost. Focus therefore for mitigation will need to be on young people in order to impact conservation knowledge. According to Kitavi (2018), Kitui county government passed a charcoal burning bill which prohibited cutting trees for

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charcoal. The bill was willingly supported by local despite some political handles.

I would support government requirement that all who sell charcoal obtain permits

Most of the adults (55.6%) were willing to support a government that all who sell charcoal to obtain a permit. Adults understood the effect of uncontrolled charcoal selling on environment; therefore, they were willing to support. The impact of unlicensed charcoal burning probably had affected the entire community thus they were willing to have it controlled. These were a positive attitude towards conservation. Mitigation measure, therefore, will need to focus on young people.

I would support county government ban forbidding sand harvesting from rivers and stream without the permit

The government intervention on the statement receives complete willingness support from most adults (65.3%). The support, however, is lower among young people with (20.7%) completely unwilling to support. With the two extremes, government will need to facelift young people so as to impact environmental knowledge for conservation.

I would support county government policy requiring factories /industries that pollute streams pay fine towards cleaning our rivers and stream.

An overwhelmed majority (77.4%) adults were completely willing to support the policy. water pollution was indicated as the most pressing environmental problem from the very beginning. The result is consistent with those findings. Thus, according to adults in Nguviu sub-location, this was an issue they were tired off and were willing to support the mitigation measures. Young people were also very close to adult at (72.7%) the finding indicates there was serious water pollution by industries which needed full support.

I would support government policy to cancel the licenses of factories and industries that pollute stream and rivers.

Whereas (68.5%) of adults were completely willing to support the government as per the statement, (19.0%) of young people were neutral. Probably they focused on job creation over environmental conservation. However, adults were consistent in their responses on pollution of water bodies. According to these findings, they were determined to conserve water despite the benefit that comes from the factories.

Generally, out of (15) items posed to measure participant pro-environmental behaviour and willingness to support existing or partial conservation policies, adults were high on (10) compared to only five for the young people. The findings, therefore, indicate that any intervention will require to include young people in project planning, designing, implementation, monitoring, and evaluation that there need aspiration and feelings will be factored.

Table 1: Participants' pro-environmental behaviour: willingness to support government policy

		Completely Willing	Partly willing	Neither willing nor unwilling	Not willing	Completely unwilling
I would support a government ban on plastic bags	Adults	85.5%	8.9%	1.6%	4.0%	0.0%
	Young people	74.4%	5.8%	25.0%	6.6%	10.7%
I would support government policy to encourage the school to use charcoal for cooking for	Adults	49.2%	35.5%	11.3%	1.6%	2.4%
	Young	50.4%	14.0%	3.3%	7.4%	24.8%

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student/pupils, this is cheap and there just so many trees	people					
I would support government policy to encourage as many young people as possible to start selling firewood to overcome unemployment because of there just too many trees.	Adults	16.1%	7.3%	14.5%	12.9%	49.2%
	Young people	15.7%	5.8%	5.0%	28.1%	45.5%
I would support government ban forbidding cutting trees for charcoal.	Adults	56.5%	24.5%	12.9%	3.2%	3.2%
	Young people	49.6%	19.8%	6.6%	5.0%	19.0%
I would support government policy to fine people who wash cars, vehicles in-stream river and lakes.	Adults	58.1%	22.6%	12.9%	0.8%	5.6%
	Young people	54.5%	17.4%	5.0%	3.3%	19.8%
I would support government policy to fine people who are caught pumping water from a stream, river, lakes for irrigating vegetable, crops, without a permit	Adults	54.8%	28.2%	6.5%	6.5%	4.0%
	Young people	52.9%	16.6%	9.9%	9.1%	16.5%
I would support government policy to fine construction companies if caught obtaining water for construction from a stream, rivers, and lakes without a permit	Adults	56.5%	28.2%	5.6%	2.4%	7.3%
	Young people	53.7%	12.4%	6.6%	7.4%	19.8%
I would support government policy to ban (forbid) people from washing clothes in-stream river, lake	Adults	77.4%	13.7%	3.2%	2.4%	3.2%
	Young people	66.1%	9.9%	4.1%	6.6%	13.2%
I would support government policy to ban (forbid) people who wash cars, vehicles, in stream, rivers, lakes	Adults	76.6%	18.5%	0.8%	1.6%	2.4%
	Young people	63.6%	8.3%	1.7%	5.0%	21.5%
I would support government ban forbidding cutting trees for charcoal	Adult	49.2%	35.5%	11.3%	1.6%	2.4%
	Young people	50.4%	14.0%	3.3%	7.4%	24.8%
I would support government requirement that all who sell charcoal obtain permits	Adult	55.6%	35.5%	6.5%	1.6%	0.8%
	Young people	35.5%	21.5%	10.7%	15.7%	16.5%
I would support county government ban forbidding sand harvesting from rivers and stream without the permit	Adult	65.3%	19.4%	8.9%	0.8%	5.6%
	Young people	36.4%	18.2%	10.7%	14.0%	20.7%
I would support government policy to cancel the licenses of factories and industries that pollute stream and rivers	Adult	68.5%	15.3%	2.4%	7.3%	19.0%
	Young people	51.2%	14.9%	19.0%	10.7%	4.1%

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Pro-environmental behaviour: Self-reported willingness to volunteer in local community conservation effort

Finally, participants' pro-environmental behaviour was measured using responses on nine statements posed on willingness to volunteer and participate in community conservation activities, based on a scale of 5 = completely willing to 1- Not willing at all were used to measure participants to volunteer and participate in community conservation activities (overall score range, 9 - 45) (Table 1). The Cronbach's alpha value for the 9 statements was 0.82, (mean4.44 ± 0.62SD). A high score means an individual was completely willing to volunteer and participate in community conservation activities.

Volunteering in a garbage collection activity to keep our neighbourhood clean

The indicator on the analysis shows that majority of young people (80.0%) were completely willing to volunteer. Interestingly an overwhelming high number of young people were completely in support. Adults are generally committed in the day to day activities while young people are less committed. On the other hand, adult values their time and do work for finances to support families. The inclusion of young people in any intervention on this problem is crucial. Adults should also be included in the process.

Willingness to attend meetings organised to discuss solutions to environmental problems affecting my community

According to the respondent majority of young people (80.0%) was completely willing to attend the meeting organised to discuss a solution to environmental problems affecting community while just 58.1% adult were in support. Looking at the percentage with good will to support, you realise that majority were pro-conservational. Nevertheless, adult was quite low in comparison to young people. Sadly, adults seemed very busy to attend such meeting while young people find it easy since they are in school and have time. Mostly adults are generally busy working to find resources to raise their families. However, all is not lost since adult were above half. An intervention will need to focus more on adult.

If I had a tree nursery, I would be willing to donate some seedlings to a public primary school near where I live to plant

Most of young people (80.2%) were completely willing to donate seedling to nearby school. The indicators showed a lot of willingness to conserve the environment. Young people continued to show high percentages, an indication of positive behaviour towards conservation. Adults continued to be on average. Adults generally value the work done on that nursery and seedling and attach a monetary value on them; hence donating them is out of their minds. Sadly, the impact of global warming is more on adults than young people. On the other hand, they are the greatest beneficiaries of environmental conservation. If situation continues in its present state, then another approach will have to be discovered to reach adults and raise their willingness.

Volunteering to participate in a tree planting activity in my neighbourhood

Young people continued to dominate the willingness to participate. Most young people, 77.7%, were completely willing. It was interesting to note the overwhelming willingness on both respondents. This was an indication of pro-environmental conservation behaviour upon the society. Looking at respondents on forest conservation and willingness to replant tree, one cannot fail to note positive behaviour. Again, young people were more willing to volunteer, probably because they are less committed than adults and like living a legacy behind. While adults are busy and lack time to volunteer. They also work for money not for conservation since at the end of the day they have a mouth to feed, school fees, bills to pay which young people do not have.

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If I had a tree nursery, I will be willing to donate some seedlings to my neighbours if they need to plant some trees in their fields/yards

Most of the young people respondents, 75.2% were completely willing. The result reveals that adults were somehow not willing to donate probably because of the value they attach to the seedling, while the young people view seedling as naturally available. On the other hand, relationship may be poor with neighbours and therefore such donations may be a problem, while young people are possibly free with each other regardless of where one comes from. Adult also focuses on the cost of production of these seedlings and therefore looks at donation like a loss. Thus, any mitigation approach that will focus on donation form will fail. Including them in designing planning and implementation will enhance their willingness.

Willingness to donate money towards rural women groups involved in establishing tree nurseries

It was very amazing to find that 72.7% young people were completely willing to donate money to women group. The revelation indicated that adults were not very much willing to donate money toward conservation drive. Interestingly an overwhelming high number of young people were willing to donate money. The challenge was that young people are financially weak. Any intervention that will focus on a donation from young people will succeed while those who will focus on adult financial donation will fail.

I would be willing to volunteer to participate if my community organised to clean water streams near the place I stay.

Most of young people (76 .9%) were completely willing to participate voluntarily if the community organised stream clean-up activities. The clean-up activities of the polluted water were an issue. From the open-ended statements, young people named water pollution as the most pressing environmental issue in Nguviu sub-location. Willingness to participate indicated pro – conservation behaviour, thus young people had high pro-conservation behaviour according to the statement. However, adults' willingness appears low thus something needs to be done to raise their levels.

Would be willing to volunteer to participate in a soil conservation activity in my neighbourhood

Majority of the respondent (68.6%) among young people were completely willing to participate in soil conservation activities. majority of young people were in school and they had studied the effect of soil erosion thus they were willing to participate because of knowledge. In the conceptual framework, environmental knowledge had a correlation with conservation. Therefore, understanding of the effect of soil erosion triggered a high level of willingness to participate in conservation.

I would be willing to donate money towards youth environmental conservation activities such as Wildlife Clubs in schools

It was amazing that out of (121), (57.0%) were completely willing to donate money towards conservation activities. The inherent conservation behaviour could have led to this. Nevertheless, it was expected that adults will have higher percentages of willingness because they are involved more in agricultural activities, however, it was different. Respondents among younger people indicated high pro-conservation behaviour.

Generally, in all the (9) statement posed to measure participant willingness to volunteer and participate in community conservation activities, young people were higher in all of them, thus the findings indicating pro-conservation behaviour was high among young people than adults. Interventions to improve pro-conservation behaviour among adults in this area may need to incorporate adults in the projects so that their needs and

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interests are taken into account when assessing the need | and designing projects.

Table 2: Pro-environmental behaviour: Self-reported willingness to volunteer in local community conservation effort

		Completely willing	Partly willing	Neither willing nor unwilling	Not willing	Completely Unwilling
I would be willing to volunteer to participate in my community organised to clean water streams near the place I stay	Adults	68.5%	23.4%	5.6%	1.6%	0.8%
	Young people	76.9%	9.9%	6.6%	0.0%	6.6%
I would be the willing volunteer in a garbage collection activity to keep our neighbourhood clean	Adults	65.3%	25.0%	4.8%	1.6%	3.2%
	Young people	81.0%	10.7%	3.3%	1.7%	3.3%
If I had a tree nursery, I will be willing to donate some seedlings to my neighbours if they need to plant some trees in their fields/yards	Adults	46.0%	41.1%	6.5%	2.4%	4.0%
	Young people	75.2%	11.6%	4.1%	5.0%	4.1%
If I had a tree nursery, I would be willing to donate some seedlings to a public primary school near where I live to plant at the school	Adults	54.0%	37.1%	4.8%	3.2%	0.8%
	Young people	80.2%	9.1%	4.1%	2.5%	4.1%
I would be the willing volunteer to participate in a tree planting activity in my neighbourhood	Adults	73.4%	19.4%	4.0%	3.2%	0.0%
	Young people	77.7%	7.4%	6.6%	2.5%	5.8%
I would be willing to attend meetings organised to discuss solutions to environmental problems affecting my community	Adults	58.1%	34.7%	1.6%	1.6%	4.0%
	Young people	81.0%	10.7%	4.1%	2.5%	1.7%
I would be willing to donate money towards youth environmental conservation activities such as Wildlife Clubs in schools	Adults	46.8%	39.5%	6.5%	4.0%	3.2%
	Young people	57.0%	23.1%	6.6%	6.6%	6.6%
I would be willing to volunteer to participate in a soil conservation activity in my neighbourhood	Adults	64.5%	22.6%	9.7%	0.8%	2.4%
	Young people	68.6%	13.2%	9.9%	4.1%	4.1%
I would be willing to donate money towards rural women groups involved in establishing tree nurseries	Adults	41.9%	46.8%	5.6%	2.4%	3.2%
	Young people	72.7%	9.9%	4.1%	5.8%	7.4%

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CONCLUSION

Environmental degradation in Kenya has worsened over the last four decades, with the country's forest cover declining from over 17 percent in 1960s, to less than 10 percent in 2000. The country's per capita availability of freshwater resources has remarkably dropped over the years due to rising population growth, degradation of water resources and water catchments, climate change and run-away rise in various point and non-point water pollution sources. Public participation in both urban and rural areas is envisaged in a core strategy of engaging various stakeholders by government and donor agencies in combating the country environmental problems. This research examined environmental attitudes, environmental knowledge and pro-environmental behaviour between adults and school children in Nguviu Sub-location. From the findings of the study, it can be concluded that more females than males in the sub-location consider various environmental problems to be a lot more serous compared to males. Women and also girls especially those from the rural areas are involved in water and firewood collection among other chores, and they are highly vulnerable to environmental degradation compared to males. However, there both females and men are willing to support current and potential government policies on environmental conservation. Moreover, both groups are willing to volunteer and participate in rural grass root community conservation efforts. Although differences in environmental attitudes exist between school-going children and adults, both groups seem supportive of government environmental conservation policies, and also very willing to volunteer and participate in activities organised by the communities that seek to reverse environmental degradation. Very targeted educational campaigns and interventions are needed to address pockets of rural communities who still do not seem to perceive the rising environmental problems.

RECOMMENDATIONS

Based on the findings of this study, we suggest the following areas for follow-up research:

- Further research need to find out why there is low environmental attitude among students despite having environmental education, clubs and trip to conservancy areas .The government need to facilitate very target environmental education on students to raise their environmental attitude thus enhancing conservation behaviour .it appear there was shortcomings in the find with the environmental education being offered in school thus review was required to ascertain its effectiveness and impact upon learners
- Further research may investigate why young people were willing to volunteer more than adults yet adults know the value of conservation. Young people willingness to volunteer was impressive. Reason for it was not clear. Future research can investigate whether students had a lot of free time or were it because of pain on environmental degradation
- Further research needs to investigate environmental knowledge and attitude in other groups in the area e.g. Business community, eatery owners, and tea factory workers. This survey was just for section of the society thus the altitude and knowledge of other was required
- There is need to replicate this research in other wards and compare findings. This will reveal whether the environmental problem is rampant or in pockets within the country

Governments

The county government should make sure that NEMA offices and officers are in every sub-location where reports and feedback as well as monitoring can be obtained. Respondent were willing to support government policy thus NEMA should utilise the good will of the community by being available for then and implementing the policy together while monitoring and evaluating

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National environmental management authority should involve local community in conservation drive and more so young people and women who have indicated willingness to support. All actors in environmental management should work together in collaboration so as to address to environmental problem from a common stand point. The problem is community was willing to collaborate with government that is not available.

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