

Empowering Environmental Stewardship Through Ncc Training: A Synergistic Cross-Disciplinary Approach

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Abstract

The National Cadet Corps (NCC) is widely recognised for its contribution to youth development, instilling values such as discipline, leadership, and service to the nation. However, an emerging area of focus is the integration of environmental education and sustainable practices within NCC training modules. This paper explores the intersection of NCC training and environmental science, emphasising how structured military-style programs can be leveraged to instill environmental ethics, conservation behaviour, and climate resilience in cadets. Drawing from both qualitative and quantitative data, the study analyses environmental initiatives undertaken by NCC units, such as tree plantation drives, plastic-free campaigns, waste management efforts, Swachh Bharat Abhiyan, and awareness rallies. It also evaluates the knowledge, attitude, and behavioural change among cadets concerning environmental sustainability. The research uses the Human Capital Development framework to argue that NCC training not only builds physical and moral strength but also promotes ecological literacy and environmental citizenship. By combining experiential learning in natural settings with formal environmental science principles, the NCC offers a unique model of eco-leadership training for India's youth. The paper concludes with policy recommendations for deeper integration of NCC training in the education curriculum, contributing to national and global environmental goals under the SDGs.

Key words: Human Capital Development, Environmental Education, NCC Training, Ecological Literacy and Sustainable Development Goals.

1. INTRODUCTION

India, as a signatory to various global environmental treaties and Sustainable Development Goals (SDGs), has been increasingly focusing on Corporate Social Responsibility (CSR) initiatives to address ecological challenges. However, while CSR-driven actions by corporate entities are important, lasting environmental change requires grassroots participation and behavioural transformation among the youth (Sarkar and Kolte, 2025). True environmental awareness and sustainability cannot be achieved solely through policy mandates; they must be cultivated in the hearts and actions of citizens, especially young individuals who will shape the future (Gondal et al., 2024).

For sustainability to permeate society, education and community-based engagement are essential at the ground level. The National Cadet Corps (NCC) initiative gives a strategic point of distributing the environmental values to young people in a manner that becomes institutionalised (Geetha and Sarkar, 2025). India can develop a generation of environmentally minded leaders by institutionalising education about environmental science in youth training like the NCC, so that the global and national agendas can be portrayed into local activities.

"What we are doing to nature is but a mirror reflection of what we are doing to ourselves and one another."
– Mahatma Gandhi.

The degradation of the environment, changing climatic conditions, and poor development processes threaten international ecosystems and human lives in a serious manner. In this regard, building environmental responsibility in young people is important. National Cadet Corps (NCC), which has a very large number of students all over India, can form an excellent beginning point to develop an environmental awareness and accountability resource. Youth as future owners of the world should use their voice to confront the environmental issues in a preventive manner. The NCC and other such programs are the means that bring the national service and ecological stewardship together. Considering the focus of the NCC on discipline, civic sense, and providing services to the community, it becomes possible to base environmental education on the learning that is based on actions (Khan, 2024). A combination of environmental awareness and practical activities also

reinforces character building within cadets, as well as the ability of cadets to emerge as ambassadors of sustainability. NCC cadets will be able to foster a sense of interest in nature through various activities like clean-up campaigns, biodiversity protection movement, and creating awareness, with the help of which they will become the agents of change towards a greener future.

In this paper, I have tried to discuss how the NCC training can be correlated in a strategic manner with environmental science to come up with a generation of youth that is not merely physically and morally sound but also environmentally conscious.

2. LITERATURE REVIEW

This intersection is again corroborated by more recent case studies and reports given by the government. Strategic objectives of young people in nature stewardship. Das (2021) demonstrates changes in the behaviour of cadets and local communities because of NCC environmental awareness programs in Mumbai, which are quantifiable. According to the work recorded by Mittal and Bansal (2024), NCC initiatives led to the youth action on the SDGs agreements. Bhandari *et al.* (2024) emphasise the role of women cadets as catalysts for climate leadership, reinforcing the gender-sensitive potential of NCC's environmental campaigns. Reports by Strumskyte *et al.* (2022) also acknowledge NCC's grassroots contribution to India's climate policy goals, particularly through gender-responsive and inclusive strategies. The Sinha and Sinha (2016) illustrate NCC's role in clean-up campaigns across cities, underscoring cadet involvement in water conservation. Research by Bagwan (2023) further highlights the role of NCC in fostering discipline, leadership, and national service, though limited literature addresses its environmental dimension directly. Hwang (2025) found that environmental action fosters a sense of agency and collective efficacy in youth. This aligns with the goals of NCC to create self-reliant, community-conscious individuals. Studies on experiential learning (Nokhwali-Mboyi and van der Waladt, 2025) reinforce that knowledge gained through direct experience—such as outdoor environmental camps, clean-up activities, and biodiversity audits—leads to deeper and longer-lasting impacts. These findings validate the structured and field-oriented nature of NCC activities as a powerful medium for environmental education. Avellana *et al.* (2024) argue for a paradigm shift in education toward sustainability that involves holistic, learner-centred approaches—many of which are inherently practised through NCC's leadership and service-based model. The environmental education to be effective, it must result in environmentally responsible behaviour, not just awareness. Their Behaviour Change Model supports integrating action-based experiences in youth programs such as NCC. Finally, several foundational studies have documented the role of environmental education in shaping positive attitudes and behaviours (Wilkinson, 2024). Several studies have documented the role of environmental education in shaping positive attitudes and behaviours. Additionally, the environmental education to be effective, it must result in environmentally responsible behaviour, not just awareness. Their Behaviour Change Model supports integrating action-based experiences in youth programs such as NCC. Tran and Jintarith (2023) argue for a paradigm shift in education toward sustainability that involves holistic, learner-centred approaches—many of which are inherently practised through NCC's leadership and service-based model. Furthermore, studies on experiential learning reinforce that knowledge gained through direct experience, such as outdoor environmental camps, clean-up activities, and biodiversity audits, leads to deeper and longer-lasting impacts (Bhatia, 2020). These findings validate the structured and field-oriented nature of NCC activities as a powerful medium for environmental education. There is also evidence of the psychological and behavioural benefits of such training. According to Devonald *et al.* (2024), environmental action fosters a sense of agency and collective efficacy, particularly in youth. These psychological dimensions resonate with NCC's mission to build self-reliant and community-conscious individuals. Meanwhile, research on NCC highlights its role in instilling discipline, leadership, and patriotism. However, limited academic work exists at the intersection of NCC training and environmental science (Dev and Padey, 2022). Some NCC directorates have undertaken green initiatives such as tree plantations and awareness rallies. These activities align with environmental education frameworks that stress active participation, problem-solving, and experiential learning.

3. CONCEPTUAL FRAMEWORK

This research employs the Human Capital Development model, which emphasises enhancing individuals' capabilities, including environmental literacy. The framework shows the linkages among:

- NCC Training: Discipline, leadership, physical fitness, teamwork
- Environmental Science Integration: Awareness, action, advocacy
- Outcome: Environmentally responsible youth, green leadership, community engagement

4. RESEARCH METHODOLOGY

Research Design: The study employed a mixed-methods research design that combined quantitative and qualitative data collection approaches. This approach resulted in the possibility to thoroughly know about the environmental awareness, attitudes, and behaviours of cadets due to NCC training.

Sample Size: The study was done in four institutions under the 7 Karnataka Battalion NCC, which were connected with the Department of School Education. The study was conducted on 200 cadets, and equal representation of genders was ensured to get various opinions.

Data Collection Technique: Data gathering was done in three stages, namely planning and sampling, quantitative survey administration and qualitative focus group discussions. It has also been proposed to make and send a Google Form to cadets to allow rapid data collection and create the analysis process. Data aggregation in Google Forms were made in real time and could be easily input into statistical software programs that could be utilised to do further analysis.

Tool for Data Collection: The main quantitative instrument involved was Dr. Haseen, which consisted of a Likert-type scale and multiple-choice questions that measure environmental knowledge, concern, interventions and behaviour. In order to get an insight into the topic qualitatively, a semi-structured focus group discussion was organised with cadets and Associate NCC Officers on the factors motivating the environmental activities, obstacles, and their experience. There were also observations conducted concerning some of the green initiatives to get the behavioural patterns and the leadership qualities in the course of NCC functions. The study was conducted in three different stages over six months.

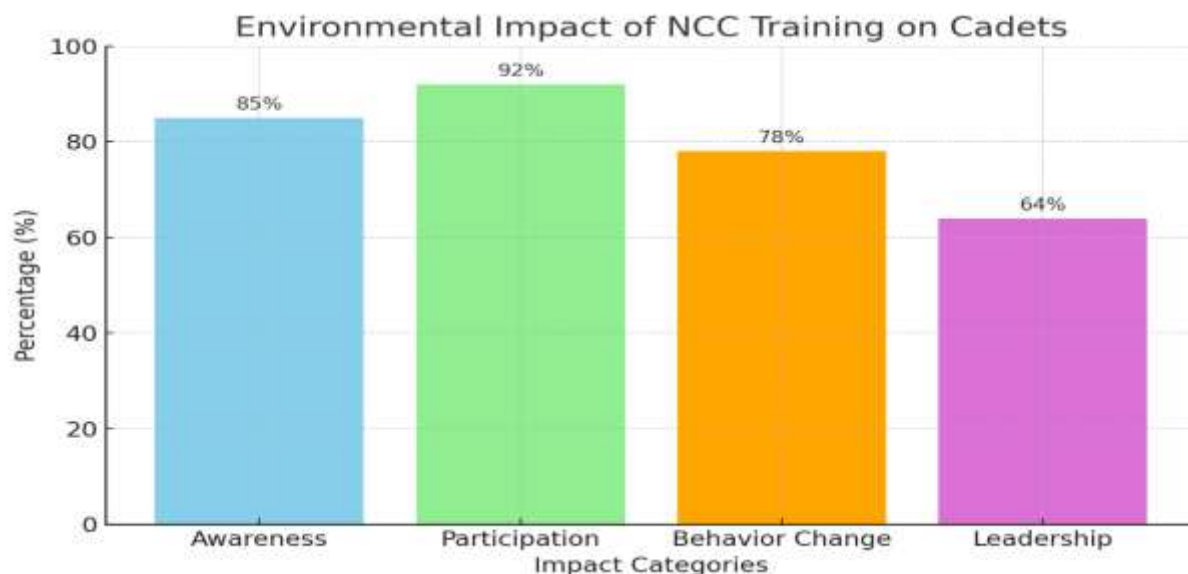
Phase I: Planning and Sampling: Four pre-university institutions affiliated with the Department of School Education with NCC units under the 7 Karnataka Battalion were selected using purposive sampling, based on the active functioning of their NCC units and the diversity of environmental activities they had undertaken. A total of 200 cadets, equally distributed across the four institutions, were invited to participate. Both boys and girls were represented to capture gendered perspectives.

Phase II: Quantitative Data collection: Dr. Haseen was employed to check cadets' environmental knowledge, attitudes, participation, and behavioural change. It contained some Likert scales with 5 points and a question with an open-ended style. Surveys were handed out face-to-face in NCC sessions on obtaining prior consent from school Administration.

Phase III: Qualitative Data collection: A cadet and Associate NCC Officers (ANO) focus group discussion was carried out at each institution. The duration of each session was 45-60 minutes and was semi-structured, including such topics as perceived personal effect on the environment, reasons to participate, and obstacles to realising green initiatives. The observations were also carried out on the activities conducted by the NCC, including tree plantation drives and cleanliness rallies to observe the cadet participation, the flow of leadership and the message that is being conveyed about the environment.

The fact that the researcher has ten years of experience working as an NCC Officer also contributed greatly to the study design and the conduct of this study. This work experience offered valuable insights into how cadets think, facilitated their interaction at the battalion level, and assisted them in formulating questions with contextual relevance in regard to the survey and the focus group discussions.

5. FINDINGS



- Awareness: Over 85% of cadets were aware of climate change and pollution, largely due to NCC lectures and events.
- Participation: 92% had participated in environmental activities such as plantation drives, cleanliness campaigns, and anti-plastic rallies.
- Behaviour Change: Cadets reported changes in personal habits (e.g., reduced plastic use, energy conservation).
- Leadership: NCC cadets initiated environmental campaigns in their local schools and communities.

6. DISCUSSION

The result of the research can be discussed as compelling evidence of NCC training efficiency in environmental awareness building and behaviour change among young people. Cadets are trained in civil responsibility and ecological concerns, inculcating corresponding values through hard training. The statistics show that experiential learning, which is at the centre of the pedagogy at NCC, is a major energy source of environmental action as cadets, who were fully engaged in green activities, showed greater awareness rating and behavioural adjustment. Also, the fact that prominent gender variations were found in the data indicates the necessity of a more gender-sensitive and inclusive environmental programming. The pro-environmental orientation was high among the female cadets due to their participation in the community-based activities and an increased quality of empathy-based leadership (Kuppuraju and Koldliwad, 2012). This creates the prospects of additional gender-specific environmental modules contained in the NCC model.

The Environmental Awareness Scale used as well reinforced the validity of the learning outcomes of the cadets, providing an accurate measurement model to be used in further evaluations. As can be seen, when the NCC green initiatives are consistent, well supported, and institutionally approved then it is likely that cadets will strive to lead sustainability to other areas off campus.

In addition, the qualitative inputs also point out that the leadership paradigm applied at NCC fosters an idea of environmental citizenship as well as the spirit of national service based on a discourse of ecological justice. This implies that patriotism and sustainability are to be a crucial synergy, wherein such a notion should be developed within national youth policies (Prajapati and Chauhan, 2025). Strictly-arranged partnerships with environmental agencies and state offices may also increase the contribution of the NCC to the environment.

A comprehensive development model comes along with NCC training, which is combined with environmental science. Discipline and teamwork are promoted through drills and physical training, and this plays a key role in the planning of environmental initiatives. In addition to classroom instructions, the experiential part of NCC

programs reinforces ecological learning (Nanaware, 2024). NCC activities are experiential; this gives a marked boost to learning about ecology beyond the classroom.

The necessity to officially introduce the environmental science modules into the NCC curriculum, such as field components like mapping biodiversity, to water testing and climatic risks drills.

7. CONCLUSION AND RECOMMENDATIONS

When environmental science is systematically woven into NCC training, cadets emerge not only as disciplined citizens but also as informed environmental stewards. Undertaking the course of environmental science by institutionalizing, within its training modules NCC can contribute greatly to the realization of the Sustainable Development Goals (specifically SDG 13- Climate Action and SDG 15 - Life on Land).

NCC training is very effective in the development of environmentally responsible citizens. It not only imbues discipline, team spirit and patriotism but also promotes the feeling of responsibility in environmental care. Results of this research demonstrate that cadets trained under some form of structured training with eco incorporated material are much more adept at awareness and sustainability within their respective communities. In addition, both theoretical foundation and experience-based learning practices implemented by the NCC are quite efficient in promoting corresponding eco-related values. This makes NCC a national mechanism not only of preparedness in defence but also a grassroots mechanism in environmental actions.

When integrated into national environmental plans, cadets of NCC can come out as young leaders with a vision to lead campaigns like the plantation of trees, water conservation, minimisation of waste, and climate adaptation. The NCC will be an important part of the process of India reaching its Sustainable Development Goals (SDGs), especially goals related to climate action (SDG 13), life on land (SDG 15), and quality education (SDG 4), with increased institutional support and a revision of the curriculum.

RECOMMENDATIONS:

- Transform NCC training from a co-curricular activity into a formal part of the academic curriculum to ensure institutional recognition and consistent integration of environmental education.
- Introduce a mandatory environmental science module in the B and C certificate training.
- Organise inter-collegiate green hackathons and policy debates through NCC forums.
- Develop digital learning modules on environmental science for cadet training apps and e-portals
- Include environmental leadership certification programs under NCC for cadets demonstrating innovation.
- Collaborate with the Ministry of Environment for national campaigns
- Create "Green Cadet Awards" for innovation and impact
- Encourage community-based sustainability projects

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