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# Exploring The Impact of Conditional Cash Transfers on Poverty Alleviation and Environmental Conservation: A Scoping Review Emphasizing Zakat Utilization

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## ABSTRACT

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Existing studies have rarely integrated poverty alleviation and environmental sustainability within a unified framework, creating a gap in designing holistic CCT-based interventions. This study examines the role of Conditional Cash Transfer (CCT) programmes in addressing poverty while contributing to environmental conservation, with particular emphasis on the potential integration of zakat as a complementary financing mechanism. Using a scoping review methodology guided by PRISMA-ScR, relevant literature published between 2018 and 2024 was systematically identified from Web of Science, SCOPUS and Google Scholar, followed by thematic analysis. The findings revealed four key themes: mitigation of deforestation, complementarities between CCT and Payments for Ecosystem Services (PES), shifts in beneficiaries' environmental attitudes and the combined effects of CCT on socio-economic and ecological outcomes. Theoretically, the study extended social protection discourse by linking poverty alleviation instruments with sustainability objectives, demonstrating how behavioural conditionalities can operationalise integrated development goals. Practically, it highlighted the potential for zakat institutions, particularly in OIC countries, to support CCT-type interventions that promoted sustainable livelihoods and environmental stewardship. The study's originality lies in synthesising fragmented evidence across poverty, environmental policy, and Islamic social finance to propose a more holistic framework for social protection aligned with sustainable development.

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## 1. INTRODUCTION

Conditional cash transfer (CCT) programmes involve governments by providing financial assistance to impoverished individual contingent upon fulfilling specific requirements. These conditions typically require children to attend school regularly, with 80% — 90% attendance rates and receive regular medical check-ups (Fiszbein & Schady, 2009; Ford et al., 2020; Hartarto et al., 2021). The primary objective of CCT programmes is to alleviate poverty, reduce inequality and promote human capital development. Originating from Latin America, CCT programmes are now globally implemented in over 60 countries, highlighting their widespread adoption and significance in poverty alleviation efforts.

Poverty and environmental degradation remain pressing challenges in many OIC countries, highlighting the need for integrated social protection mechanisms that address both socio-economic vulnerability and environmental sustainability (Fathurrahman, 2023).

Zakat is a key Islamic fiscal instrument and a mandatory form of almsgiving intended to redistribute wealth to support the eight categories of Asnaf (Esa et al., 2025a). While zakat plays a crucial role in poverty alleviation within OIC countries, its focus on environmental conservation remains limited (Fatoni et al., 2019). Traditionally aimed at addressing immediate human needs, zakat primarily supports the poor and needy. However, it often overlooks interconnected environmental challenges, as current zakat programs predominantly focus on socioeconomic needs and alleviating hardship (Ali et al., 2021). From the perspective of Maqasid al-Shariah, however, the protection of progeny (*hifz al-nasl*) is a key objective that inherently supports sustainable environmental stewardship, as safeguarding natural resources is essential for ensuring intergenerational well-being. Previous studies have also recommended incorporating zakat into agricultural development and environmental protection initiatives, arguing that such integration could enhance both poverty alleviation and ecological sustainability (Tumiran et al., 2025). The lack of structured frameworks to integrate environmental issues into zakat distribution further compounds this gap. However, there is growing recognition that incorporating environmental stewardship into zakat practices could not only contribute to long-term sustainability but also address poverty in a more holistic manner, aligning with Islamic principles of balance and care for nature.

Meanwhile, many comprehensive studies have demonstrated that climate change was impeding endeavours to eliminate poverty. There is a lack of agreement in identifying alternative studies due to the constraints of previous research (Malerba, 2020). An essential aspect of comprehending the shift towards sustainability is examination of correlation between different manifestations of sustainable development outcomes. Nevertheless, evidence regarding the interconnectedness of social and environmental aspects in achieving the goals of sustainable development is scarce (Dyngeland et al., 2020).

Alternatively, payment for ecosystem services (PES) is a conditional monetary assistance programme that incentivises natural resource managers, typically landowners, to provide environmental conservation services (Fripp, 2014; Avila-Foucat et al., 2021). Payments are made in exchange for services such as preserving biodiversity, protecting water resources, and mitigating climate change. Like Conditional Cash Transfer (CCT) programmes, PES links monetary incentives to specific behavioural requirements, aiming to influence recipients' actions toward social and environmental objectives. Empirical studies have highlighted the close link between poverty and environmental degradation, as impoverished communities

often depend on natural resources for survival, leading to unsustainable practices. For example, Castañeda et al. (2018) found that poverty-stricken areas were disproportionately affected by environmental degradation. CCT programmes have also shown potential in mitigating these issues; Alix-Garcia et al. (2013) reported reduced deforestation in Mexico, Zwane (2007) observed links between income and deforestation in Peru, and Jayachandran et al. (2017) demonstrated that targeted monetary assistance in Uganda encouraged conservation among landowners. Overall, these findings underscored the need for integrated approaches that will consider the complex interplay between poverty and the environment. By addressing both issues concurrently through initiatives like CCT programmes, policymakers can work towards sustainable development goals that prioritise the well-being of communities and ecosystems. Building on this, the objective of the study was to conduct a scoping review examining the impact of Conditional Cash Transfers on poverty alleviation and environmental conservation, with a particular emphasis on zakat utilization.

Exploring the impact of Conditional Cash Transfers on poverty alleviation and environmental conservation is crucial for designing social protection programs that improve financial stability while promoting sustainable behaviours. By integrating environmental targets, CCTs can address both socio-economic and ecological challenges, particularly for vulnerable communities disproportionately affected by climate change. Investigating their effectiveness can guide policies and innovations in social protection systems, aligning poverty reduction with environmental sustainability and contributing to more equitable, resilient, and sustainable development.

## **2. METHODOLOGY**

This study followed the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) (Tricco et al., 2018). The review aimed to identify knowledge gaps and map the existing literature on the relationship between poverty alleviation and environmental conservation.

### **2.1 Formulation of Research Questions**

The research question guiding this review was: “What are the impacts of conditional cash transfers on poverty and environmental concerns?”.

### **2.2 Systematic Searching Strategy**

The systematic searching strategy was carried out in three main stages: identification, screening, and eligibility. During the identification stage, relevant articles were retrieved from selected databases using predefined keywords and Boolean operators. In the screening stage, duplicates were removed, and the remaining articles were assessed based on their titles and abstracts. Finally, in the eligibility stage, full-text articles were evaluated against the inclusion and exclusion criteria to determine their relevance to the research objectives (Tricco et al., 2018).

#### *2.2.1 Identification*

The study focused on phrases, such as “conditional cash transfer,” “climate change,” “environment,” and “payment for ecosystems.” Searching was conducted by using database providers SCOPUS, Web of

Science as well as Google Scholar for the period 2018-2024. A total of 167 items were retrieved (Fig.1).

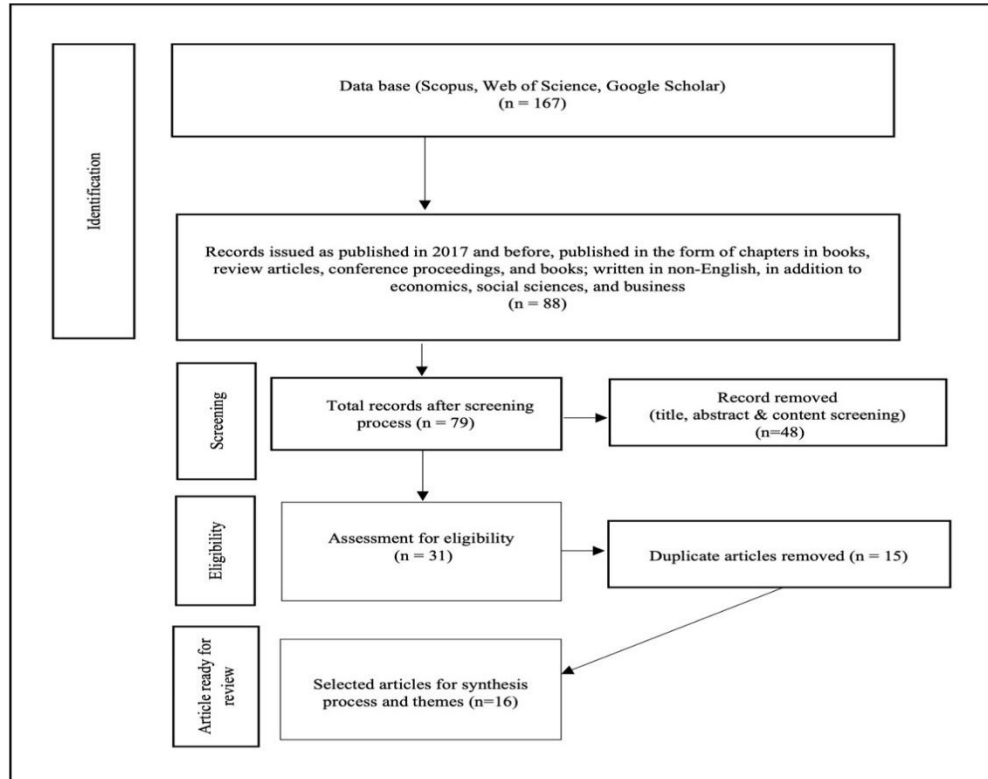


Figure 1. Flow Chart

Source: Shaffril (2023)

### 2.2.2 Screening

The second step in the methodical search strategy was the screening process, which ensured that only relevant publications question was chosen. Kitchenham and Charters (2007) asserted that authors have the freedom to select any criteria that effectively address the research question. The screening process examined articles published within the past seven years (2018-2024) to identify the most recent research findings on the CCT programme, poverty and the environment. To avoid any translation errors only articles in English were considered. Additionally, only articles related to economics, social sciences and business management were selected to specifically focus on the economic impact. A total of 88 items were eliminated through the screening process, leaving 79 articles to retain.

Table 2: Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion
Type of Documents	Journal (empirical study)	Book, book chapter, conference proceedings
Publication Timeline	2018-2024	Before 2018
Field of Study	Economics, business, and social sciences	Apart from economics, business, and social sciences

### 2.2.3 Eligibility

A perusing of abstracts constituted the final step to verify that only relevant articles were selected. 48 articles were excluded because they did not align with the specified keywords and research topic. Furthermore, the procedure eliminated duplicate articles from various data stores and articles that were inaccessible. During this process, an additional 15 articles were excluded, leaving 16 articles behind for the subsequent scope review and analysis. Although only 16 studies met the inclusion criteria, this reflected the highly specific and underexplored nature of the topic (Stringer et al., 2024). The small number does not compromise the value of the review but rather highlights a significant research gap in the integration of CCT programmes with environmental outcomes.

## 2.3 Data Extraction and Analysis

Data extraction was directed by specific study inquiries. Qualitative investigations employed thematic analysis to assess the retrieved data. This analysis identified themes according to patterns obtained from equations and correlations between the extracted data of selected studies (Braun & Clarke, 2006). At the initial phase of synthesis, data which shared similarities or connections were gathered under a specific theme. Currently, six primary themes were recognised. At the second stage, the theme underwent a thorough assessment to verify that it accurately and effectively portrayed the facts. Throughout the process, four definitive issues were selected: deforestation reduction, synergy between CCT and PES programmes, change in recipient attitudes towards environmental conservation and the effects of CCT programmes on poverty and environment.

## 3. RESULTS

This study encompassed a total of 16 publications. The predominance of studies was carried out in Brazil (7 studies) and Mexico (5 studies), with Colombia following suit (2 studies). Unsurprisingly, research was mostly conducted in Latin American countries due to commencement of CCT programme on the continent. The remaining investigations were limited to one in Indonesia and encompassed many countries worldwide

(1 study). Most articles were published in 2020 (4 studies), followed by 2018, 2021 and 2023 (3 studies), 2019 (2 studies) and 2022 (1 study). The bulk of studies employed the quantitative methodology (12 studies), whereas the remaining studies used a qualitative approach (4 studies).

### 3.1 Theme Creation

#### 3.1.1 *Mitigating deforestation*

In general, recent research had demonstrated that the CCT programme had a beneficial effect on forest protection and consequently led to a decrease in deforestation rates (Alix-Garcia et al., 2018; Avila-Foucat et al., 2021; Ferraro & Simorangkir, 2020; Malerba, 2020; Rigolini, 2022; Rønningstad & Jelsness, 2020). In Brazil, for instance, the CCT programme, known as Bolsa Familia, achieved a 30% reduction in deforestation rates within impoverished communities in the rural areas (Rigolini, 2022). A similar reduction of 30% was also observed in Indonesia (Ferraro & Simorangkir, 2020).

Nevertheless, Rocha and Meyer (2023) reported an increase in deforestation throughout the Amazon and Cerrado regions of Brazil. The study also examined cost-effectiveness of the programme, (Alix-Garcia et al. 2018; Alix-Garcia et al. 2019; Costa (2023); Ferraro & Simorangkir (2020); Rønningstad & Jelsness, 2020). Ferraro and Simorangkir (2020) determined that the economic worth of preventing carbon emissions was projected to exceed expenses associated with the programme implementation. A recent study by Alix-Garcia et al. (2019) proposed a more economically efficient strategy for executing a CCT programme that focused on altering the mindset of aid beneficiaries towards deforestation.

In addition, Costa (2023) conducted a study and suggested that the government explore alternative activities that were more appealing than utilising forest resources. This approach not only reduced expenses associated with deforestation, but also enhanced environmental conservation efforts. In Brazil, Rønningstad (2020) revealed that the CCT programme not only reduced deforestation effectively, but also yielded benefits that were three times more than the program cost. In addition, a study by Malerba (2020) discovered that communities that received programme assistance had significant effect on deforestation conservation, in contrast to communities that were only made aware of the programme but did not receive aid. Similarly, Costa (2023) concluded that the outcome of CCT programmes varied, depending on the specific characteristics of communities involved.

#### 3.1.2 *The synergistic relation between CCT and PES programmes*

The second issue of debate revolved around collaboration and harmonisation between the CCT and PES programmes. A study was conducted to evaluate the interaction and alignment between certain CCT initiatives which focused on environmental conservation and existing CCT programmes (Avila-Foucat et al., 2021; Izquierdo-Tort, 2020). The PES programme and the CCT programme interacted in terms of coverage, management, resource allocation and socioeconomic impact on recipients in Mexico (Izquierdo-Tort, 2020). Prior research also discovered favourable outcomes of socio-economic interaction between both programmes, which encompassed many phases. This was because beneficiaries could augment the income of their families, leading to subsequent socio-economic advancement stemming from the benefits gained from both programmes. Izquierdo-Tort (2020) proposed that policymakers should consider micro and macro factors when adjusting the role of PES programmes in policy consolidation. This approach aimed to enhance the effectiveness of these programmes.

Additional research had also indicated that PES was an environmental conservation programme that incorporated CCT aspects, making it suitable for worldwide promotion (Alix-Garcia et al., 2018). Furthermore, by implementing willingness to accept (WTA) model in the PES programme in the Mexican state, the CCT programme contracts could reduce costs effectively. The contract served as a blueprint for planned collaborative initiatives aimed at enhancing the effectiveness of environmental conservation programmes while minimising budgetary expenditure (Alix-Garcia et al., 2019). Additional research also demonstrated that the implementation of environmental health services, in conjunction with financial assistance from the Bolsa Familia programme in Brazil, had a beneficial effect in preventing diarrhea and decreasing the mortality rate of this illness for children under five years old. This highlighted the positive impact of combining environmental CCT programmes such as PES programme, with cash aid (Souza et al., 2021b).

### 3.1.3 *Altering beneficiary attitudes towards environment*

According to recent studies, funding from the CCT programme could enhance land management activities, such as constructing fire extinguishers, preventing pests, constructing monitoring infrastructure to prevent illegal activities and supporting land restoration with a 50% improvement. The study additionally discovered that CCT support transformed the mindsets of recipients to a more favourable perspective and it did not diminish the impact on unpaid duties. The project additionally developed CCT initiatives which were aimed at promoting effective land management and fostering positive attitudes (Alix-Garcia et al., 2018; Alix-Garcia et al. 2019).

The CCT program can have either positive or negative effect on the demand-side economics. For example, there may be a rise in demand for raw materials sourced from the environment or a preference to reduce the utilisation of natural resources due to higher household income (Costa, 2023). Additional research also posited that when individuals adhere to appropriate conduct, CCT programmes can impact recipients' attitudes towards environmental management and promote increased consumption (Rigolini, 2022). Furthermore, an investigation of native communities in Brazil also analysed the influence of CCT assistance on environmental consequences. The study examined how revenues might be used to shift the allocation of time from necessary living cost activities to anticipated leisure activities, considering the varying environmental implications (Cunha et al., 2018).

### 3.1.4 *The impact of CCT on poverty and environmental conservation*

Investments to ensure that households have access to clean water, sanitation and solid waste services in mitigating fatalities caused by food shortages and diarrhea were identified in recent studies as contributing to the positive environmental impact of CCT systems (Souza et al., 2021a; Souza et al., 2021b). Malerba (2020) revealed a positive correlation between provision of economic assistance to households and increase in land acquisitions aimed at improving living costs. However, the study revealed that the rate of deforestation did not escalate. Instead, it exhibited a decline as compared to communities who did not get assistance under the CCT programme. Nevertheless, (Arena et al., 2023) discovered that the CCT programme did not offer comprehensive solutions for alleviating poverty and addressing climate change.

In Brazil, Rønningstad and Jelsness (2020) discovered that the Bolsa Familia programme, which was part of the CCT initiative, effectively alleviated the strain on forest exploitation by offering assistance to individuals with low incomes; hence, reducing poverty levels. The study also asserted that poverty

eradication programmes had the potential to contribute to environmental protection. Further investigation by Rocha and Meyer (2023) revealed that there was a change in the way forest areas were developed and that CCT assistance caused a rise in forest exploration as agricultural and farming activities expanded. The collaboration between firms and governments in addressing economic challenges related to environmental conservation and social issues was imperative (Pereira Junior & Moroni, 2022). Furthermore, some studies posited that poverty alleviation initiatives specifically aimed at the most destitute individuals could contribute to achieve global environmental preservation objectives, under certain circumstances (Ferraro & Simorangkir, 2020). According to the PES programme statistics, a community that received help exhibited a 9% increase in social responsibility, including attitudes, cooperation and institutional level, as compared to the community that did not receive aid (Alix-Garcia et al., 2019).

#### **4. DISCUSSION**

Recent research has examined Conditional Cash Transfer (CCT) programmes primarily as instruments for poverty alleviation and human capital development, typically linking financial assistance to education and health-related conditions. Recent studies have expanded this focus to explore broader socio-environmental outcomes, including employment-related conditionalities and behavioural incentives that encourage sustainable practices, as seen in programmes such as Payments for Ecosystem Services (PES).

Academic attention has increasingly highlighted the intersection between CCTs and environmental conservation, particularly in relation to deforestation. Several studies have reported that CCT programmes can contribute to reductions in deforestation and promote environmentally responsible behaviour (Alix-Garcia et al., 2018; Avila-Foucat et al., 2021; Ferraro & Simorangkir, 2020; Malerba, 2020; Rigolini, 2022; Rønningstad & Jelsness, 2020). PES-type initiatives explicitly integrate environmental objectives with poverty alleviation strategies, enabling programmes to address ecological and socio-economic goals simultaneously. Nonetheless, findings remain context-dependent, with some studies reporting mixed or fluctuating environmental outcomes influenced by programme design and local conditions.

Evidence has also indicated that CCT support can shape land management practices and environmental attitudes, including investments in land restoration, fire prevention, and resource management (Alix-Garcia et al., 2019). Increased household income may either intensify or reduce pressure on natural resources, depending on complementary education and policy design (Costa, 2023). In addition, access to financial assistance has been associated with improved sanitation, waste management, and public health outcomes in vulnerable communities (Souza et al., 2021a; Souza et al., 2021b).

Despite these promising synergies, integrating environmental conditionalities into CCT frameworks raises ethical and economic considerations, including questions of fairness, administrative complexity and cost-effectiveness. Scholars continue to debate whether such programmes generate transformative change or merely extend existing welfare mechanisms. Without clear environmental integration, CCTs risk overlooking long-term sustainability challenges.

These gaps suggest the need for innovative adaptations, particularly within urban contexts where poverty and environmental risks increasingly intersect (McCoshan, 2020). The utilisation of zakat funds to support CCT-type mechanisms presents a viable pathway, enabling the incorporation of environmental

conditionalities alongside poverty alleviation objectives (Esa et al., 2025b). Such an approach could promote responsible environmental behaviour while advancing socio-economic resilience within a Shariah-compliant framework.

## 5. CONCLUSION

The primary aim of this study was to conduct a thorough examination of scoping reviews on CCT programmes, focusing on their implications for poverty alleviation and environmental protection. This research contributes significantly to the academic discourse and offers practical insights for policymakers to consider when designing and implementing social welfare programmes by exploring the synergies between poverty alleviation and environmental conservation. It highlights the potential of integrating environmental conditions into CCT schemes to promote sustainable practices while addressing socio-economic needs. The study also emphasized the complexities of balancing poverty reduction with environmental protection and raises key ethical and economic considerations. The findings of this study have highlighted the potential for stakeholders, particularly zakat institutions, to develop comprehensive poverty eradication initiatives that integrated environmental conservation efforts in OIC countries. Moreover, the study underscored the historical emphasis of early CCT programme deployments in addressing deforestation challenges in rural areas of Latin American nations and Indonesia. However, it also revealed a notable gap in the literature which concerns the application of CCT programmes to address urban environmental issues, such as water and air pollution. Efforts to bridge this gap would be instrumental in advancing the attainment of SDGs, particularly those related with poverty eradication (SDG 1) and environmental sustainability (SDG 13).

These findings have important implications for policy and practice. Policymakers should consider integrating CCT programmes into broader strategies that address both poverty alleviation and environmental conservation, while ensuring equitable access, effective monitoring, and responsible implementation. Agencies involved in delivering CCTs should adopt a holistic approach that aligns social protection with sustainability goals through collaboration among government, civil society, and the private sector.

Further research is needed to understand how CCT mechanisms influence socio-economic and environmental outcomes, enabling more targeted and effective interventions. In this context, zakat institutions can play a complementary role by aligning zakat distribution with initiatives that support sustainable livelihoods, environmental responsibility, and community resilience, particularly in OIC countries, thereby strengthening the developmental impact of CCT-based approaches. A key limitation of this study was that it did not empirically examine the role of zakat institutions in integrating environmental conservation with poverty alleviation. While the study highlighted this potential, further research is needed to assess its practical implementation and outcomes. Additionally, future research should explore the potential role of zakat institutions in addressing both poverty and environmental challenges. By expanding the focus of zakat to include environmental conservation initiatives, these institutions could help bridge the gap between economic and ecological sustainability, providing a holistic approach to alleviating both poverty and environmental degradation in both rural and urban settings.

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## 7. CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

## 8. AUTHORS' CONTRIBUTIONS

**Mohd Suffian Mohamed Esa:** Conceptualization, Methodology, Software, Data curation, Formal analysis, Resources, Writing-Original draft preparation, Visualization **Hairunnizam Wahid:** Methodology, Supervision, Funding acquisition, Validation, Writing- Reviewing and Editing **Salmy Edawati Yaacob:** Methodology, Writing- Reviewing and Editing, Validation **Abdul Hayy Haziq Mohamad:** Methodology, Data curation, Writing-Original draft preparation.

## 9. DATA AVAILABILITY/SUPPLEMENTARY MATERIALS

Data sharing is not applicable to this article as no new datasets were generated or analysed during the current study.

## 10. ETHICS STATEMENT

The authors declare that this research did not involve human or animal subjects.

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