The Impact of Women Leaders on Environmental Stewardship: A Narrative View

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ABSTRACT:
Study of Green Feminism continues through examinations of new-age lifestyle movements and new-age alternative professions to show its core principles for ethical revaluation of nature and society in global new-age sustainability debates. The ability of women to demonstrate their competencies leads to subsequent leadership positions. Through public participation society achieves dual benefits of innovation and accountability while obtaining transparency which establishes necessary conditions for achieving environmental evaluation support. A majority of business leaders have achieved environmental governance improvements yet one fifth of female leaders persistently deal with multiple organizational challenges at work. The issue of unequal participation becomes evident through continuing gender inequalities. Gender-based protections possess intrinsic characteristics that might lower the obstacles women encounter while attempting to affect environmental laws and policies. However, such efforts often fall short due to unconscious biases that restrict women's power and decision-making. This project intends to de-bias large-scale environmental stewardship by utilizing gender-equitable practices that can enable women to lead at local to regional levels. Therefore, it calls for the implementation of gender-sensitive leadership frameworks in order to facilitate an inclusive, sustainable model.
KEYWORDS: Feminism, Leadership philosophy, Gender balance, Environmental governance, Sustainability, Stewardship

I. INTRODUCTION

The preservation of Earth depends heavily on environmental stewardship since resource exhaustion together with biodiversity extinction and climate changes endanger the planet and all life on it. Environmental policies face limited female influence because women remain underrepresented in positions that hold executive power to establish policies. When inclusive sustainability strategies unite with women's empathetic leadership approach they motivate people to become more active in environmental matters (UN Women n.d.). This research investigates the methods executive women use to distribute leadership and defend sustainability goals that support gender equality objectives.

Women in Environmental Governance

Leadership roles filled by women result in better environmental governance because they provide both analytical skills and collaborative abilities (UNDP, 2016). Christiana Figueres accomplished this milestone through her executive role at the UNFCCC that produced the Paris Agreement (Figueres, 2016). The Green Belt Movement led by Wangari Maathai in Kenya managed to both restore forests and create economic opportunities for women according to Maathai (2004). The involvement of local activists shows the connections between preservation of nature with equality for women.

Leadership positions within corporate organizations allow women to infuse sustainability principles into business operational plans. UN Women (2020) has proven that organizations led by diverse groups make bigger investments that lead to pollution reduction through green technology adoption. Mary Barra the GM CEO demonstrated business organizations can reach environmental transformation by using sustainable initiatives to boost electric vehicle production. However, women still face barriers in leadership due to gender bias, cultural constraints, and resource limitations. The 2021 edition of the World Economic Forum's Global Gender Gap Report shows women maintain minimal representation in worldwide leadership positions which restricts gender-based solutions for environmental issues.

Traditional ecological knowledge defence falls under the stewardship of rural and Indigenous women who serve as central figures in environmental protection. Indigenous women from the Amazon organize collective groups to safeguard their forests as well as protect their cultural communities (UN Permanent Forum on Indigenous Issues, 2018). These disadvantaged groups need effective involvement in governance structures because current exclusionary practices create marginalization issues that demand their empowerment.

The environmental regulations have improved because of women even though they remain underrepresented in political positions. Parliamentary representation of women results in better sustainability-oriented legislation (Mavisakalyan & Tarverdi, 2019). Women unite gender fairness with sustainability solutions by establishing climate adaptation plans and renewable energy systems and conservation programs. The research design relies on a narrative approach that investigates female leaders' environmental work through case analyses and academic texts and research findings. Knowledge about gender-sensitive governance approaches results in innovative solutions that develop into fair responses to ecological crises.

II.   Literature Review:

Studies about female environmental leadership focus on their particular value for climate protection and sustainability practices. Studies show female leaders place environmental concerns at high priority when in charge resulting in improved environmental laws. The Organization for Economic Co-operation and Development (2022) processed data regarding women's leadership in environmental matters across civil society operations and both public government institutions and sustainable industries. Research by Glass et al. (2016) shows female executives provide vital environmental performance advantages to organizations which proves their influence as sustainability advocates.

The literature review by Cook and Glass (2018) concludes that firms under female executive leadership tend to implement green practices. Research by Ergas and York (2012) proves how vital women leaders are to local sustainability initiatives because of the positive local community environmental leadership benefits they deliver. Plumb (2019) investigates how indigenous women leaders protect biodiversity while maintaining ecological stability while seeking environmental equality against male opposition.

Research by Gaard (2015) employs ecofeminist framework to reveal how feminine life experiences both enhance environmental solution efforts and enable better ecological governance across genders. Studies from Agarwal (2009) and Leach (2016) indicate that environmentally inclusive leadership approaches generate superior sustainability together with equal outcomes. According to Mavisakalyan and Tarverdi (2019) data shows increased female involvement in politics produces tougher environmental laws.

Studies confirm that female environmental leadership produces ecological consequences at multiple international scales. Women played a crucial role in international climate negotiations according to Buckingham and Kulcur (2009) because their participation produced more inclusive outcomes. Research shows that women must have active involvement during sustainability agenda formation because environmental politics needs feminist analysis approaches according to MacGregor (2010).

Larson et al. (2015) together with Martin et al. (2017) discovered that female leaders of environmental groups support diverse conservation strategies and sustainable practices. Studies by Westermann et al. (2005) demonstrate that female involvement makes essential contributions in both collective management decisions and sustainable resource stewardship within community-based natural resource settings.

Executive positions of women help organizations achieve better business sustainability. Post and team (2011) explored diverse board representation in corporate governance and tested a strong positive correlation between board diversity and environmental CSR priority. Studies by Bear et al. (2010) reveal that environmental challenges occupy the central concern space for female executives who drive corporate sustainability ventures.

The growth of female leaders throughout multiple sectors creates an enhanced environmental awareness. Women presently lead across environmental activism including both public schools and corporate and governmental positions. Grassroots environmental activism receives influential leadership from women as exemplified in Wangari Maathai's Green Belt Movement (2004) and with Shiva's (1988) demonstration of women mentoring agricultural stability and ecological learning.

Terry (2009) teamed up with Clancy et al. (2012) to research gender-specific environmental practices establishing how climate policy programs formed for both genders could solve societal and ecological imbalances. The work of Seager (2014) provides professional theory research support for gender-inclusive environmental studies alongside policymaking.

The evaluation of female leaders establishes their competence to oversee environmental practices which endorse sustainable ethical projects combined with social justice initiatives. Research literature reveals profound information about fascinating subjects. Female leadership in environmental roles demonstrates multiple strategic aspects which help preserve sustainability efforts while reshaping environments from reactive environmental practices into climate-conscious systems. The combination of resource allocation decisions linked to policy

development through gender-sensitive governance frameworks produce beneficial environmental outcomes according to Denton (2002) and Resurrección (2013). Female leaders working on grassroot levels together with community development and social deposit conservation demonstrate effective action on and off because they prioritize sustainable and just biodiversity conservation and natural resource stewardship and community prosperity (Westermann et al., 2005; Liao, 2019). Strategic boards that mix female politicians with different backgrounds have proven to create comprehensive environmental legislation to drive sustainability innovation according to Cook and Glass (2018) and Mavisakalyan and Tarverdi (2019). Youth programs need to address the effects of climate change on adult women since these difficulties multiply adaptation challenges for Global South communities.

Several research reports indicate that women's direct involvement in food systems management and agricultural efforts alongside water resource protection strengthens both climate resilience and adaptation variables (Buechler 2009, Thompson-Hall et al. 2016). Research by Gaard (2015) and Sachs (2019) together with ecofeminist perspectives have revealed that environmental governance must achieve gender equality for both social justice and eco-sustainability outcomes. Research equipped with these studies reveals how woman leaders enhance environmental emergency response effectiveness and drive the advancement of decision practices toward stronger empowerment structures with inclusive principles (Buckingham & Kulcur, 2009; Tschakert & Machado, 2012).The crucial implementation of leadership by women leaders plays central roles to analyze the how women shape environmental sustainability while strengthening community resilience., Thompson-Hall et al. 2016). Ecofeminist viewpoints, together with feminist perspectives, show that social justice and eco-sustainability require gender equality in environmental governance (Gaard, 2015; Sachs, 2019). Through these studies, researchers demonstrate how women leaders transform global environmental response capabilities while advancing decision-making fields toward greater empowerment coupled with inclusiveness (Buckingham & Kulcur, 2009; Tschakert & Machado, 2012).

Initiatives taken by women leaders have been critical in understanding the impacts of long-term leadership by women on environmental sustainability and community resilience. The scientific data demonstrates that leadership approaches implemented by women effectively merge economic together with social and environmental elements to create more enduring outcomes across communities according to Agarwal (2010) and Berkes (2012).

Sustainable practices rely fundamentally on the combination of adapting to changing circumstances while meeting regional community demands. Female leaders use adaptive management approaches that combine flexible systems and contextual/local practices (Mastrorillo et al., 2016). Educational initiatives for shipboard systems rely on community involvement through their decision-making approaches as this combines initiative direction with staff enhancement and ensures total user control (Resurrección, 2013; Sultana, 2014).

Two essential implications emerge from these research results. The essential character of gender-inclusive policies is maintained because they can effectively showcase themselves. Leadership systems require reorganization to combine different views which enable sustainable environmental decision-making. The research indicates that women leading at top levels will address current environmental challenges and develop sustainable development frameworks for future progress.

The majority of female leadership promotes tactical alignment between sustainability initiatives and traditional ecological knowledge. Researchers accept TEK because it demonstrates sustainable resource management practices so women leaders apply its insights to develop solutions which indigenous communities welcome resulting in enduring practical solutions (Berkes, 2012; Mistry & Berardi, 2016).

The combination of sufficient financial support allows for structural resource mobilization to enable sustainability improvements. Women leaders face obstacles to sustainably fund their initiatives yet find environmental and relational solutions which overcome financial restrictions (Agarwal 2010, Mastrorillo et al. 2016). The financial backing offered through cooperative arrangements brings together financial assistance with greater local community engagement and empowerment initiatives.

Initiatives achieve sustainability by forming networks and coalitions. Women leaders forge partnerships between nonprofit organizations with community stakeholder groups to facilitate knowledge exchanges about best practice methodologies thus increasing initiative leverage while building shared resilience (Buckingham & Kulcur, 2009).

Theoretical Background
During the past few decades environmental stewardship promotion has seen a growing prominence under female leadership. Business sustainability programs join forces with grassroots campaigns and legislative lobbying efforts through the work of these female leaders. The story explores numerous approaches female leaders use to affect environmental stewardship through support for marginalized members while promoting innovation and driving systemic shifts.

Women in Governance and Environmental Policy

International accords alongside environmental laws reflect their core concepts through the female policymakers who lead this space. The world has seen Wangari Maathai lead the Green Belt Movement of Kenya while Christiana Figueres worked toward the 2015 Paris Climate Agreement. The leaders serve wonderfully as examples demonstrating how female perspectives strengthen policy dialogue through combined insights about social equity and economic security and ecological wellbeing.

Research shows nations which elect female legislators create increased climate regulations. Women in governance positions take unique responsibilities that lead them to prioritize ambiguous decision-making as well as enduring ecological sustainability. Research shows women leaders combine complete perspectives regarding environmental matters with a comprehensive analysis of social and economic questions.

Grassroots Leadership and Community Empowerment

At the grassroots level women leadership drives environmental advocacy alongside community mobilization campaigns. Their advocacy work focuses on promoting sustainable practices which also solve regional environmental concerns such as pollution and water scarcity and deforestation problems. Environmental scientist Vandana Shiva from India defends biodiversity protection and seed freedom which enables regional farmers to control agricultural techniques.

Through cooperative women-led grassroots initiatives communities learn to build capacity within resilient networks that develop broad-based community benefits. The protection of rainforests from unlawful mining and logging activity in the Amazon basin depends on indigenous women leaders who perform this essential duty. Significant results require these leaders to link cultural with scientific observations by combining traditional ecological expertise with modern advocacy strategies.

Corporate Sustainability and Innovation

Women corporate executives are leading the development of sustainable programs that fuse operational practices with ecological requirements. Waite Anne Simpson along with Mary Barra of General Motors lead the promotion of both green technology and ethical investing methods. The leaders demonstrate to businesses how they can succeed in uniting financial achievement with their environmental duty.

Businesses adopt better environmentally friendly approaches when their decision-making groups both have diverse leadership and include substantial female involvement. This systematic pattern illustrates the fundamental requirement for gender diversity to stimulate creative and responsible organizational performance. Through their leadership of corporate operations women advance reputations of responsible business conduct by promoting sustainable sourcing practices along with transparency and decreased carbon emissions.

Challenges and Opportunities

Environmental stewardship execution by female leaders encounters obstacles stemming from gender discrimination and limited resources and sustained underrepresentation that block their progress. Cohesive collaborative action will guide advancements toward gender equity and leadership development and decision-making equality to tackle these problems.

The growth of women's influence in environmental stewardship needs investment in mentoring programs together with educational programs and legislative measures that support gender-inclusive leadership at all levels. To maximize women's authority feature business partnerships between different sectors through collaborative efforts with varied professional perspectives.

GAP OF THE STUDY

Our understanding of female leadership roles in environmental care has grown considerably but important research questions remain unanswered. Research needs more insight about how gender and cultural dynamics interact with environmental leadership patterns throughout Southeast Asia and sub-Saharan Africa. The existing research primarily highlights recognized individuals despite its insufficient coverage of women's initiatives in ordinary communities. There exists a persistent evaluation barrier because researchers need more studies that assess environmental outcomes spanning multiple decades after women engage in leadership. To fully grasp how women foster sustainability within green technology innovations and renewable energy sectors scientists must conduct additional research.

Research into female environmental leadership decision-making exhibits growing acknowledgment but significant knowledge gaps persist throughout the field. Insufficient research exists regarding how female leadership approaches directly shape environmental policy creation and enforcement throughout multiple fields. The examination of style differences between female leaders in various situations remains insufficient in the research landscape despite numerous case study investigations of individual success (UNDP, 2016).

Another gap within the literature emerges due to near-absence of representation from marginalized communities particularly indigenous women who lead. The environmental conservation initiatives at local and

international scales depend heavily on leadership from indigenous communities who preserve traditional ecological know-how. Female leadership studies in publications primarily into official positions although grassroots environmental contributions made by women in unofficial roles matter substantially (UN Permanent Forum on Indigenous Issues, 2018).

Research has not effectively examined the structural barriers that prevent women from attaining leadership responsibilities in the environmental field despite institutional challenges along with economic disparities and gender-based biases. The advancement of targeted efforts to bring gender balance into environmental governing bodies requires more extensive analysis of these existing obstacles (World Economic Forum, 2021).

Studies of how female leadership impacts environmental outcomes during extensive time spans are rare and insufficient. Research largely focuses on fast results but delivers minimal understanding of how sustained female leadership affects environmental sustainability and policy development. Research focused on missing knowledge points will establish a deep comprehension about gender interactions within environmental stewardship.

Primary sources in this literature review evaluate qualitative sustainability aspects by analyzing traditional knowledge systems and community empowerment programs together with flexible management approaches. Research on the long-term sustainability effects of women-led initiatives remains sparse because quantitative data lacks alongside empirical assessments.

Research examining sustainability metrics among women-led initiatives must focus on longevity analysis of initiatives along with resource efficiency and community welfare assessment (Agarwal, 2010; Mastrorillo et al., 2016).

Current research based on baseline understanding derived from isolated case studies across different locations proves inadequate for understanding sustainability variations across different environments thus future study requires systematic comparisons between regions. The factors influencing sustainable initiative progress among different population groups become clearer when we study their impact on program sustainability according to Resurrección (2013) and Sultana (2014).

The review addresses basic obstacles for women leaders including funding problems and gender-related discrimination yet deeper analysis of sustainability-specific challenges is essential. The literature would benefit from research focused on explaining how women leaders employ coping strategies to manage barriers along with guidelines for preserving their work through time (Agarwal, 2010; Mastrorillo et al., 2016).

The review properly underscores networks and coalitions as critical sustainability supporters for women-led ventures yet neglects detailed examination of institutional and policy frameworks which affect initiative sustainability. An assessment of policies combined with an evaluation of institutional support frameworks will generate better recommendations for building a sustainable ecosystem of women leaders in sustainability (Buckingham & Kulcur, 2009).

The present literature review examines women-initiated sustainability initiatives while neglecting the study of how knowledge and leadership transfer occurs between generations of women. Research on women leaders would gain valuable insights by studying their efforts to develop next-generation capacity and preserve their efforts through the work of future participants (Berkes, 2012; Mistry & Berardi, 2016).

III.   SCOPE OF THE STUDY

The goal of this research examines how female leaders implement environmental stewardship practices across different domains which span from business sustainability to grassroots activism and policy creation. This study analyses women's leadership strategies for environmental problem resolution through global and local perspectives. Powerful female leader case studies will be studied through an analysis focusing on success and obstacles faced during their leadership. The study investigates female environmental project involvement through an analysis of gender relationships with cultural aspects and leadership factors. Through extensive research across multiple sectors and perspectives this study establishes a complete understanding of how female leaders promote ecological resilience while driving sustainable development.

IV.   OBJECTIVES OF THE STUDY

1.   To analyse the contributions of grassroots women leaders in addressing local environmental challenges and fostering community resilience.
2.   To identify the systemic barriers faced by women leaders in environmental initiatives and propose strategies to overcome them.
3.   To provide a comprehensive understanding of the long-term impacts of women's leadership on environmental sustainability and resilience.

V. Research Methodology

The research methodology follows a comprehensive evaluation of multiple sources to answer questions about the impact female leaders have on environmental stewardship. The data will be sourced from academic journals alongside scholarly publications including peer-reviewed articles with additional material from conference papers and scholarly texts that document women's participation in environmental policy and activism together with corporate sustainability programs. The research analyses strategy and impact development of noteworthy female leaders Wangari Maathai and Vandana Shiva along with Christiana Figueres through case studies. The collection draws empirical support through NGO data specializing in gender and environmental issues together with World Bank and United Nations reports which maintain their reputation through reliable data sources. Original interviews alongside published sources will be used to document female leadership experiences in environmental developments. The analysis includes evaluation of sustainability and policy papers issued by government bodies together with corporations to demonstrate women's business and governance involvement for research enhancement.

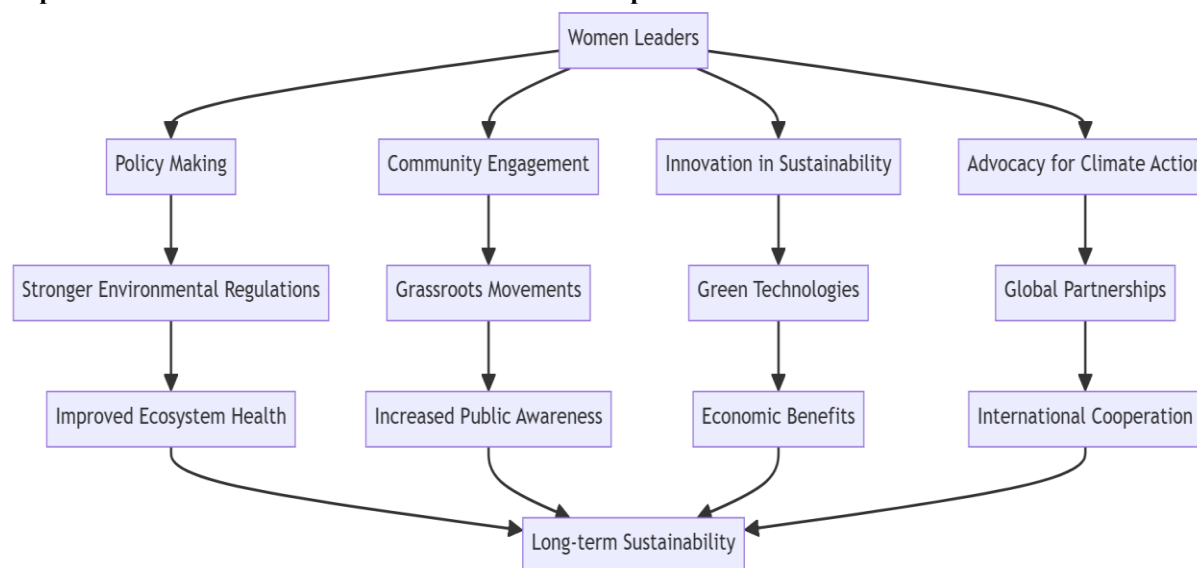**Impact of women leaders on environmental stewardship**

Fig – 1: Impact of women leaders on environmental stewardship (Source: Author Compilation)

The visualization depicts four avenues through which female leaders promote environmental stewardship while discussing their capabilities to influence regulation and entrepreneurship development and legislative progress and grassroots engagement. These elements work together to generate specific outcomes which promote both environmental health and sustainability.

Key Components
1.   **Women Leaders**
The discussion primarily centres around female leaders because they have substantially boosted sustainability and climate action projects. These female leaders address global environmental matters through separate approaches which foster team collaboration and durability thinking while ensuring inclusivity. Through their leadership across innovation along with policymaking and lobbying and community engagement activities women guide sustainable development progress. The leadership abilities of women drive broader industry power by encouraging others to help advance their endeavours. Women leaders act as catalysts for delivering projects which harmonize social impact with economic performance and sustainable environmental protection.
2.   **Policy Making:**
Through this element we examine how women leaders play a crucial part in creating sustainability-friendly legislation as well as strict environmental standards. Sustainable behaviour norms and comprehensive solutions for pollution together with deforestation and carbon emission reduction stem from their regulatory work. The policies blend research-based data with all-warrant participation to handle present environmental challenges while establishing sustainable future approaches. Natural ecosystems receive protection through the laws which these officials champion while parties throughout all industries must answer for their activities. The achievements in environmental transformation came directly from the policy work of feminist leaders.

3.   Community Engagement

Community-wide solutions to environmental and climate problems represent an essential role for women leaders in local settings. Women leaders both enhance sustainability teamwork and empower grassroots actions while spreading environmental knowledge throughout their communities. These initiatives produce environmental change when communities embrace their responsibility to reduce environmental damage. Grassroots movements led by women leaders strengthen environmental action by launching initiatives that reduce trash production protect natural resources and enable renewable energy systems. Through participative engagement communities become part of sustainability initiatives resulting in strong and self-powered communities.

4.   Innovation in Sustainability

Whenever female leaders support sustainable practices and green technology development, they activate innovation pathways. Through technological advancements we obtain immediate solutions to pressing environmental challenges that include eco-friendly materials and renewable power generation systems. Through multidisciplinary teamwork female leaders accomplish sustainable alignment of innovation developments with environmental goals. Companies and employment opportunities develop because green technology implementation brings economic benefits to businesses. The future becomes stronger and environmentally sound because women focus on developing sustainable innovation.

5.   Advocacy for Climate Action

Female leaders strategically use advocacy as their primary method to fight climate change while mobilizing international support. Through their extended networks women leaders actively promote short-term climate change solutions through international collaborative efforts. The advocacy work of these female leaders helps obtain diverse perspectives through highlighting both fair solutions requirements and team member accountability needs. Female leaders unite entities through shared climate goals in order to boost global climate protection agreements. Their programs inspire both accountability and speed in addressing climate challenges.

6.   Stronger Environmental Regulations

Female leadership produces stronger environmental rules through their advocacy and policy development actions. Rules established by policymakers serve to minimize environmental destruction because organizations and governments follow these mandatory orders. Severe environmental regulations are important because they create solutions for ecosystem-health problems related to pollution and habitat decline. When women lead decision-making organizations, they protect the integrity of rules by ensuring practicality and enforceability as well as real-world impact. These rules support both biodiversity protection and sustainable development throughout the long term.

7.   Grassroots Movements

Community engagement becomes effective when women lead grassroots campaigns that lift people toward progress. Local approaches guide people through essential collective action to address environmental challenges within their specific areas. As female leaders take the lead in these endeavours they ensure that grassroots projects maintain alignment with universal sustainability goals. Significant transformations often start from these movements which are demonstrated through lobbying campaigns and community cleanup operations and environmental restoration initiatives. Local initiatives serve global sustainability through the examples of grassroots movements.

8.   Green Technologies

Throughout society the promotion of state-of-the-art green technology receives vigorous support from women in leadership positions. These technologies based on sustainable approaches to energy management and renewable resources deliver practical solutions for minimizing environmental degradation. The leadership of women allows them to deal with environmental matters while driving economic growth through support of these advancements. Green technologies represent a critical solution to decrease carbon output while cutting down dependence on fossil fuels. Women leaders take steps to expand innovative practices worldwide by making them both accessible and scalable.

9.   Global Partnerships

Female leaders place international partnerships at the top of their priorities because they want to resolve environmental and climatic issues together. When countries form joint partnerships they combine their resources and knowledge plus experience. The combined responses to urgent concerns including biodiversity loss and climate change stem from international collaborative partnerships. When seeking fair participation from all businesses and sectors female leaders emphasize the need for inclusive collaboration. Their work establishes international collaboration into a fundamental component of sustainable development.

10.   Improved Ecosystem Health

Structures and territories recover stability because female leaders join active preservation and restoration efforts in ecosystems. Through their work female leaders create healthy ecosystems which maintain both biodiversity and ecological stability by addressing pollution and deforestation causes. Healthy ecosystems provide both higher climate change resistance and sustainable natural resource management. Ecosystems developed through women

leader initiatives contribute advantages for human communities alongside all other non-human life. Support for enduring sustainability emerges directly from ecosystem health initiatives.

11.   Increased Public Awareness

Structures and territories recover stability because female leaders join active preservation and restoration efforts in ecosystems. Through their work female leaders create healthy ecosystems which maintain both biodiversity and ecological stability by addressing pollution and deforestation causes. Healthy ecosystems provide both higher climate change resistance and sustainable natural resource management. Ecosystems developed through women leader initiatives contribute advantages for human communities alongside all other non-human life. Support for enduring sustainability emerges directly from ecosystem health initiatives.

12.   Economic Benefits

Sustainable practices and green technology initiated by female leaders yield major economic benefits. Some of these benefits are savings from the effective use of resources, employment, and new markets. Women leaders persuade governments and corporations to invest in green solutions because they create win-win situations for society. They align environmental objectives with economic expansion. Economic rewards are also given for the long-term sustainability of the sustainability programs.

13.   International Cooperation

Leadership positions maintained by women facilitate international teamwork for environmental issue resolution including climate change. The collaborative effort allows the world to address sea level elevation and carbon discharge responses. Through strategic partnerships women leaders help build international alliances which support sustainability initiatives. Their backing ensures the solutions maintain equality together with inclusiveness and diversity of perspectives. The basis for resolving shared environmental issues rests upon international teamwork.

14.   Long-term Sustainability

All supporting components in this framework unite to achieve ongoing sustainability as the fundamental goal. The essence of women into leadership is to blend economic growth with environmental conservation while accounting to the needs of social responsibility for future generations. Sustainability through time vs. current problems starts embedding within long-term esses aimed at supporting future frames at the cost of correct day-to-day miseries. The goal of energizing all activities to this end entails policy development and advocacy activities by the involvement of the local community, depending on the level of need. Therefore, the organization is going to ensure that economic principles are developed that do not twist the natural ecosystem beyond the limits of human habitats whenever such change would become detrimental.

VI.   KEY FINDINGS

1.   Women Leaders as Enablers of Policy Change: Women executives are at the policy whether guiding its formulation or implementation from rough to fine. The Paris Accord is a great case in point how women leaders allocate resources for environmental goals which are sustainable and will inspire community participation.

2.   Corporate Leadership Prompts Sustainability: "Women in top executive roles focus spend on clean technology, ethical sourcing and moving toward sustainability".

Leadership by diverse crew creates these organizations to stay accountable. The right target and way to keep the focus on environmental responsibility

3.   Intersectionality Shaping Leadership Skills: Women are developing leadership ability within environmental citizenship through intersectional factors of gender with their social and economic/historical context Intersectionality's shapes the Skill of Leadership

Cultural background of political leaders changes how they assess environmental policy.

This leads to the integration of practices of gender equality, which may not work as well overall and have differential impacts on different groups so creating new resource challenges for realizing environmental sustainability.

4.   Integrated and cooperative Approaches: Through their integrated Leadership stance, women leaders integrate economic success with environmental protection and social equality in sustainable transformation strategies.

5.   Structural Barriers Are Still in Place: Environmental leadership by women has come a long way (systemically however, there are those institutions that suppress their full eco- authority and advancement). A diluted blend of gender equality practices, in conjunction with only sparse subset representation reinforces some of the core resource related challenges that are chokes on environmental sustainability.

6.   Roundabout and Democratic Approaches: In their sustainable strategy, women leaders are integrating business success; environmental (sustainability) and social equity in one very holistic hoe.

VII. SUGGESTIONS

They should entrench policy frameworks for the policies to be enforced that align with equity in access to all levels and opportunities of leadership of environmental institutions, presentations from all organizations and government agencies

1. The Port Authority will have created a leadership training package, probably the women leader training and mentoring to win environmental career skills like that.

2. Large research deficiencies being evident in E& A across other Southeast Asian countries so need to close this gap to understand the achievements of women in high rank.

3. Areas where organisations and organizations should work together in partnership with building or companies to deliver gender balance in leadership mode and for environmental responsibility within the operation — the other side [RADIUS]

4. What is needed to push the normalisation and establishment of these global platforms to declare/make visible, honour women leaders -the women of their secularity is seen/being claimed to light up their work across social scales

5. Intersectionality works, mapping the social / economic-Earth felt in gender-diverse ways produces better policy.

6. Intersectionality works, gender-diverse projects that maps the social/economic-earth felt in intersectional ways leads to better policy.

7. The solution technology for digital resources access propelling is about flipping the last shleps, because women leaders will not stop sustainability and green development from continuing trying to advance in their profession.

8. Amplify and mobilize: just as the media has advertising, they should also front-of-mind conspire to get-particulars of targeted acquisition say spotlights, such as regular spotlights calendars produced during periods explaining how things went- especially for females speaking on sustainability for the environment.

VIII. FUTURE RESEARCH DIRECTIONS:

1. Longitudinal Research: Research identifies a single longitudinal data analysis of women in leadership in environmental outcomes over the years.

2. Other places: new technologies leadership trends women in, circular economy projects and renewable energy developers etc. (extracted from the study) The analysis (a ways of women in environmental sustainability leadership strategies footprint since our source cultural socioeconomic ethno value-systems ethnographic roots; Geertz).

3. The Analysis (Study) Under-Writes Women Perusing Leadership Strategies through Cultural, Socioeconomic Ethno value-system Ethnic Origin (Behaviour) for Environmental Endeavouring (her environ mentality)

4. Cross-regional validation studies; The here study is done to discover such feminine leadership capability with regional roots/foundations highest and most commonly used so compare environmental initiatives results can be assessed.

5. ROLE OF Education / MENTORING: Though research has mostly been theoretical behind the potential-of women in environmental leadership but still it is grounded in education opportunities, Mentoring and Executive Development Tools.

6. Regional to Global Dynamics: The research addresses the journey process of transitioning women leaders in regional role-to national and global engagement respectively facing certain difficulties in ascending growth.

7. Technology aware leadership- this line of inquiry aims to understand how women can lead using technology in different contexts aimed at solving an environmental problem and supporting green solutions.

8. The Policy Impact Analysis: it is a research exercise to find out the impact fact about whether women-led environmental programs based on leadership have contributed to sustainability enhancing (yes/no).

Discussions / Conversations:
Using LDA for Topic Modelling

Fig – 2: Using LDA for Topic Modelling (Source: Author Compilation) – (Source-Author Compilation)

Most likely, the diagram is created by applying Latent Dirichlet Allocation (LDA) to topic modeling on a number of documents. There are striking sets of words for each topic that are abundant throughout the whole data set. The keywords underline the major points found in the data. For example, "resource," "decision," "knowledge," and "develop" show that the field deals mainly with decision-making and handling resources. The use of "sustainability," "governance," "development," and "ecofeminist" hints that the text is about sustainable development, especially from an ecofeminist point of view. Words like "women leaders" "corporate," "equality," and "conservation" are added to the list, and these focus on women's roles in organizations, equality issues, and nature preservation. With this kind of graphic, researchers can understand the important topics in a large collection of texts without reviewing each document one by one. The process makes it easier to identify main themes, notice similarities among different topics, and combine research papers for analysis. With the help of such diagrams, one can find out any hidden patterns and connect various research aspects related to strategic leadership, gender equity, and sustainability.

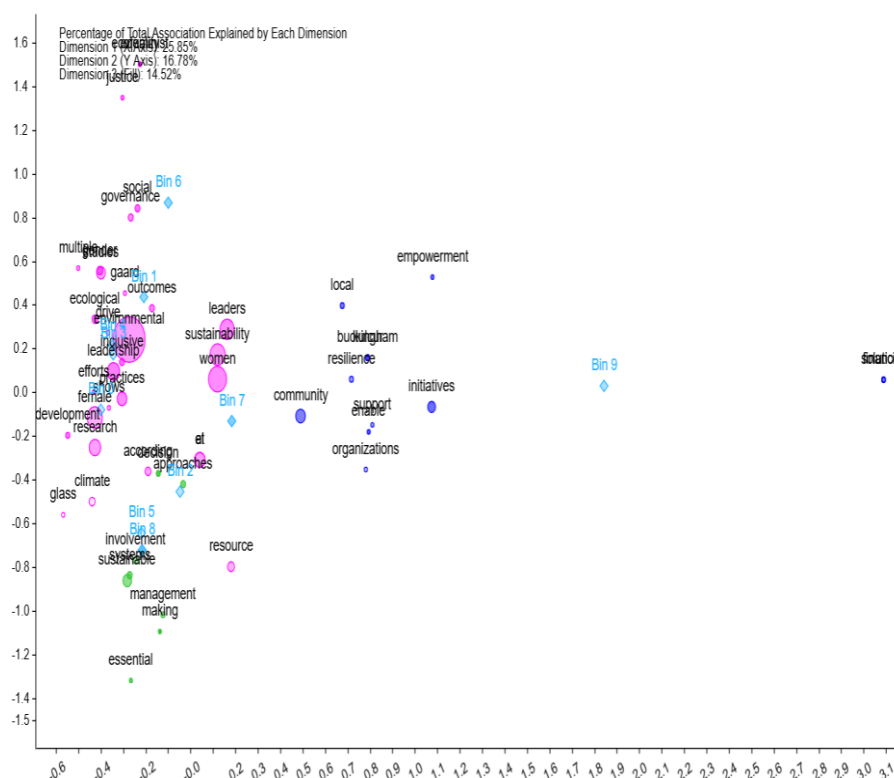**Multiple Correspondence Analysis (MCA)**

Fig-3: Multiple Correspondence Analysis (MCA)-(Source: Author Compilation)

According to Multiple Correspondence Analysis (MCA), related concepts are shown by their shared keywords within the same dataset. With every point on the map, we see a keyword, and how close they are to each other suggests their link. 21.85% and 16.78% of Dimension 1 and 2 show us what are the main hidden structures in the data. After that, the keywords are sorted into colored groups, called bins, such as magenta (concerned with inclusive leadership, ecology, and sustainability), green (dealing with development and research), blue (about community, resilience, and empowerment), and cyan (governance and social structures). Dimension 1 shows a difference between the common or community-driven topics and the broader, government-focused subjects, as Dimension 2 opposes goals for society's leading figures with essential operations. Thanks to this visualization, we can spot leading themes, work out key concepts, and notice patterns that are not obvious from looking at keyword frequency, helping us when studying leadership, sustainability, and society.

References

[1]. Figueres, C. (2016). *The inside story of the Paris Agreement: How nations united to tackle climate change*. Nature Climate Change, 6(4), 339–342.
[2]. Maathai, W. (2004). *The Green Belt Movement: Sharing the approach and the experience*. Lantern Books.
[3]. UN Women. (2020). *Women and the environment: Gender equality in environmental protection*. Retrieved from https://www.unwomen.org.
[4]. United Nations Development Programme (UNDP). (2016). *Gender and climate change: Gender-responsive climate policy*. Retrieved from https://www.undp.org.
[5]. World Economic Forum. (2021). *Global gender gap report*. Retrieved from https://www.weforum.org.
[6]. UN Permanent Forum on Indigenous Issues. (2018). *Indigenous women: Key actors in biodiversity conservation*. Retrieved from https://www.un.org.
[7]. Mavisakalyan, A., & Tarverdi, Y. (2019). Gender and climate change: Do female parliamentarians make a difference? *European Journal of Political Economy, 56*, 151–164.
[8]. Inter-Parliamentary Union (IPU) and UN Women. (2022). *Women in politics: 2022*. Retrieved from https://www.ipu.org.
[9]. United Nations Development Programme (UNDP). (2016). *Gender and climate change: Gender-responsive climate policy*. Retrieved from https://www.undp.org.
[10]. UN Permanent Forum on Indigenous Issues. (2018). *Indigenous women: Key actors in biodiversity conservation*. Retrieved from https://www.un.org.
[11]. World Economic Forum. (2021). *Global gender gap report*. Retrieved from https://www.weforum.org.
[12]. Eagly, A. H., & Carli, L. L. (2007). *Through the Labyrinth: The Truth About How Women Become Leaders*. Harvard Business Review Press.
[13]. Mastrorillo, M., et al. (2016). "The Role of Women in Environmental Policy: A Review of the Evidence." *Environmental Science & Policy*, 66, 1-10.
[14]. Agarwal, B. (2010). "Gender and Land Rights Revisited: Exploring New Possibilities Through a Decade of Dialogue." *Journal of Peasant Studies*, 37(4), 871-898.
[15]. UN Women (2015). "The Role of Women in Sustainable Development: A Global Perspective."
[16]. Bennett, N. J., et al. (2019). "Environmental and Social Outcomes of Women's Participation in Marine Resource Management." *Marine Policy*, 104, 34-43.
[17]. Denton, F. (2002). "Climate Change and Vulnerability: The Role of Women." *Gender and Development*, 10(2), 8-15.
[18]. Gonzalez, M. S., & Hossain, M. (2019). "Women's Leadership and Sustainable Development: A Review of Evidence." *Sustainability*, 11(20), 5689.
[19]. Agarwal, B. (2009). Gender and forest conservation: The impact of women's participation in community forest governance. *Ecological Economics, 68*(11), 2785-2799.
[20]. Bear, S., Rahman, N., & Post, C. (2010). The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *Journal of Business Ethics, 97*(2), 207-221.
[21]. Buckingham, S., & Kulcur, R. (2009). Gendered geographies of environmental injustice. *Antipode, 41*(4), 659-683.
[22]. Clancy, J. S., Skutsch, M. M., & Batchelor, S. (2012). Gender equity in access to energy services. *World Development, 40*(3), 1-7.
[23]. Cook, A., & Glass, C. (2018). Women on corporate boards: Do they advance corporate social responsibility? *Human Relations, 71*(7), 897-924.
[24]. Ergas, C., & York, R. (2012). Women's status and carbon dioxide emissions: A quantitative cross-national analysis. *Social Science Research, 41*(4), 965-976.
[25]. Gaard, G. (2015). Ecofeminism and climate change. *Women's Studies International Forum, 49*, 20-33.
[26]. Glass, C., Cook, A., & Ingersoll, A. R. (2016). Do women leaders promote sustainability? Analyzing the effect of corporate governance and environmental performance. *Corporate Governance: An International Review, 24*(4), 334-351.
[27]. Leach, M. (2016). Gender equality and sustainable development. *Routledge*.
[28]. MacGregor, S. (2010). Gender and climate change: From impacts to discourses. *Journal of the European Association for Studies on Literature, Culture and Environment, 1*(1), 51-59.
[29]. Mavisakalyan, A., & Tarverdi, Y. (2019). Gender and climate change: Do female parliamentarians make a difference? *European Journal of Political Economy, 56*, 151-164.
[30]. Martin, A., et al. (2017). Environmental governance and gender: A systematic review. *Environmental Research Letters, 12*(7), 073001.
[31]. Plumb, A. (2019). Indigenous women and environmental stewardship. *Indigenous Policy Journal, 30*(3), 1-16.
[32]. Post, C., Rahman, N., & McQuillen, E. (2011). Female board members and corporate social responsibility. *Corporate Governance, 11*(1), 30-39.
[33]. Seager, J. (2014). Disasters are not natural: Gendered perspectives on disaster risk reduction. *World Bank*.
[34]. Shiva, V. (1988). Staying alive: Women, ecology, and development. *Zed Books*.
[35]. Terry, G. (2009). Climate change and gender justice. *Oxfam International*.
[36]. Westermann, O., Ashby, J., & Pretty, J. (2005). Gender and social capital: The importance of gender differences for the maturity and effectiveness of natural resource management groups. *World Development, 33*(11), 1783-1799.
[37]. Buechler, S. (2009). Gender, water, and climate change in Sonora, Mexico: Implications for policies and programmes on agricultural income-generation. *Gender & Development, 17*(1), 51-66. https://doi.org/10.1080/13552070802696912

[38].   Carr, E. R., & Thompson, M. C. (2014). Gender and climate change adaptation in agrarian settings: Current thinking, new directions, and research frontiers. *Geography Compass, 8*(3), 182-197. https://doi.org/10.1111/gec3.12121

[39].   Chan, C. K., & Chiu, R. L. H. (2020). Women, environment, and climate change: Building gender-responsive resilience. *Asian Journal of Women's Studies, 26*(3), 301-318. https://doi.org/10.1080/12259276.2020.1821506

[40].   Dankelman, I. (2010). *Gender and climate change: An introduction*. Routledge. https://doi.org/10.4324/9781849774795

[41].   Denton, F. (2002). Climate change vulnerability, impacts, and adaptation: Why does gender matter? *Gender & Development, 10*(2), 10-20. https://doi.org/10.1080/13552070215903

[42].   Jha, S., & Sarangi, S. (2018). Women and environmental governance in India: Analyzing the policy and institutional framework. *Environmental Development, 28*, 19-28. https://doi.org/10.1016/j.envdev.2018.10.003

[43].   Kawarazuka, N., Locke, C., McDougall, C., Kantor, P., & Morgan, M. (2017). Bringing analysis of gender and social–ecological resilience together in small-scale fisheries research: Challenges and opportunities. *Ambio, 46*(2), 201-213. https://doi.org/10.1007/s13280-016-0814-5

[44].   Liao, C. (2019). Empowering women for sustainable forest management: A systematic review of policies and practices in Asia. *Forests, 10*(9), 734. https://doi.org/10.3390/f10090734

[45].   Meinzen-Dick, R., Quisumbing, A., Doss, C., & Theis, S. (2019). Women's land rights as a pathway to poverty reduction: Framework and review of available evidence. *Agricultural Systems, 172*, 72-82. https://doi.org/10.1016/j.agsy.2017.10.009

[46].   Nightingale, A. J. (2011). Bounding difference: Intersectionality and the material production of gender, caste, class, and environment in Nepal. *Geoforum, 42*(2), 153-162. https://doi.org/10.1016/j.geoforum.2010.03.004

[47].   O'Shaughnessy, S., & Krogman, N. (2011). Gender as contradiction: From dichotomies to diversity in natural resource extraction. *Journal of Rural Studies, 27*(2), 134-143. https://doi.org/10.1016/j.jrurstud.2011.01.001

[48].   Resurrección, B. P. (2013). Persistent women and environment linkages in climate change and sustainable development agendas. *Women's Studies International Forum, 40*, 33-43. https://doi.org/10.1016/j.wsif.2013.03.011

[49].   Sachs, C. (2019). *Gender, agriculture, and agrarian transformations: Changing relations in Africa, Latin America, and Asia*. Routledge. https://doi.org/10.4324/9781315266171

[50].   Tandon, N. (2007). Biopolitics, climate change, and water security: Impact on women in the global South. *Signs: Journal of Women in Culture and Society, 35*(1), 173-180. https://doi.org/10.1086/676905

[51].   Thompson-Hall, M., Carr, E. R., & Pascual, U. (2016). Enhancing adaptive capacity in food systems: Toward a gender-sensitive approach. *Global Environmental Change, 35*, 152-162. https://doi.org/10.1016/j.gloenvcha.2015.08.003

[52].   Tschakert, P., & Machado, M. (2012). Gender justice and rights in climate change adaptation: Opportunities and pitfalls. *Ethics and Social Welfare, 6*(3), 275-289. https://doi.org/10.1080/17496535.2012.704929

[53].   van Koppen, B. (2002). A gender performance indicator for irrigation: Concepts, tools, and applications. *International Water Management Institute*. https://doi.org/10.3910/2009.028

[54].   Wright, H., Vermeulen, S., Laganda, G., Olupot, M., Ampaire, E., & Jat, M. (2014). Farmers, food, and climate change: Ensuring community-based adaptation is mainstreamed into agricultural programs. *Climate and Development, 6*(4), 318-328. https://doi.org/10.1080/17565529.2014.965654.

[55].   Cornwall, A., & Goetz, A. M. (2005). Democratizing democracy: Feminist perspectives. *Democratization, 12*(5), 783–800. https://doi.org/10.1080/13510340500322181

[56].   Eagly, A. H., & Carli, L. L. (2007). *Through the labyrinth: The truth about how women become leaders*. Harvard Business Review Press.

[57].   Kabeer, N. (2010). Can the MDGs provide a pathway to social justice? The challenges of intersecting inequalities. *Institute of Development Studies*.

[58].   Northouse, P. G. (2019). *Leadership: Theory and practice* (8th ed.). Sage Publications.

[59].   Pande, R., & Moore, C. T. (2015). Women's political representation and leadership in India: Examining the impact of gender quotas. *The World Bank Research Observer, 30*(1), 27–63. https://doi.org/10.1093/wbro/lkv003

[60].   Wallerstein, N. (2006). What is the evidence on effectiveness of empowerment to improve health? *World Health Organization Regional Office for Europe*.

[61].   Moser, C. (2016). Gender transformation in a new global urban agenda: Challenges for Habitat III and beyond. *Environment and Urbanization, 28*(1), 221–236. https://doi.org/10.1177/0956247815618938

[62].   Demetriades, J., & Esplen, E. (2008). The gender dimensions of poverty and climate change adaptation. IDS Bulletin, 39(4), 24-31.

[63].   Gurumurthy, A. (2004). Gender and ICTs: Overview report. BRIDGE.

[64].   Resurrección, B. P. (2013). Persistent women and environment linkages in climate change and sustainable development agendas. Women's Studies International Forum, 40, 33-43.

[65].   Sultana, F. (2014). Gendering climate change: Geographical insights. The Professional Geographer, 66(3), 372-381.