

Environmental Governance Innovation and Community Climate Resilience: The Mediating Role of Institutional Trust

Muhammad Arshad ^{1*} Abdul Rehman Khan ² Rabia Chaudhary ³ Nijah Akram ⁴

¹ Lecturer, Department of Commerce, Thal University Bhakkar, Punjab, Pakistan.

Email: muhammad.arshad@tu.edu.pk

² Additional Deputy Commissioner, Govt. of the Punjab, Pakistan.

Email: malizaiiba@gmail.com

³ Secretariat Service, Federal Government of Pakistan, University of Reading, UK.

Email: rachamohsin@icloud.com

⁴ HoD, Department of Architectural Engineering Technology, Punjab Tianjin University of Technology, Lahore, Punjab, Pakistan. Email: akram.nijah@ptut.edu.pk

ABSTRACT: Environmental challenges around the world have been exacerbated by climate change, highlighting the importance of innovative form of governance that builds up the resilience of communities in their ability to survive and react to climate risks. This study explores the linkage between environmental governance innovation and community climate resilience and explores institutional trust as a possible mediator. The approach used was quantitative and data was gathered from 350 respondents in climate vulnerable communities of Pakistan using a structured questionnaire. The data obtained were analyzed using SPSS software through reliability analysis, descriptive statistics, correlation analysis, regression analysis and mediation analysis. The results show that innovation in environmental governance has important effects on driving community climate resilience via mechanisms of participation, transparency, collaboration and adaptive capacities. The findings also show that environmental governance innovation can have a positive impact on institutional trust, and that institutional trust could have a significant effect on improving community resilience. The findings of the mediation analysis support an understanding that trust in institutions is one important pathway for how governance innovation leads to better climate resilience outcomes. This study integrates the theories of trust-based institutional relationships into the field of environmental governance to shed light on the importance of trust-based institutional relationships to effective climate adaptation. The results indicate that participatory, transparent and inclusive governance systems are needed to boost the credibility of governance institutions and resilience of the communities to climate-related challenges.

KEYWORDS: Environmental, Climate Change, Governance Innovation, Environmental Governance, Climate Risks, Institutional Trust

Introduction

Climate change is one of the most complex environmental challenges of the 21st century, affecting the ecological systems, economic development, and social stability of the world. The rising number of extreme weather events, such

Pages: 67 – 82

Volume: 5

Issue: 8 (September 2026)

Corresponding Author

Nijah Akram

✉ akram.nijah@ptut.edu.pk

Cite this Article: Arshad, M., Khan, A. R., Chaudhary, R., & Akram, N. (2026). Environmental Governance Innovation and Community Climate Resilience: The Mediating Role of Institutional Trust. *The Regional Tribune*, 5(9), 67-82.

<https://doi.org/10.55737/trt/v-ix.425>

as floods, droughts, heatwaves, and sea level rise, has exacerbated communities' vulnerability, especially in developing nations where institutional capacity and adaptive resources are weak. Conventional environmental management practices that focus on regulating and intervening at the central level have increasingly proved insufficient to tackle the dynamic climate risks. Hence, the need for novel governance solutions to foster engagement, collaboration, transparency, and adaptive decision-making among a diversity of actors in the environmental governance arena has been stressed by scholars and policymakers (Patterson et al., 2019). Environmental governance innovation is a departure from traditional hierarchical governance systems to more flexible, participatory, and knowledge-based systems to enhance the ability of society to address climate challenges.

Environmental governance innovation can be defined as the invention and application of novel institutional designs, policy mechanisms, technological solutions and participatory processes that enhance environmental governance for better environmental decisions and outcomes. Innovative governance embraces communities, civil society organizations, private actors, and scientific organizations in order to integrate them into environmental management processes, whereas traditional governance systems are based primarily on government authorities. In recent studies, it has been emphasized that to tackle the challenge of climate adaptation, governance systems need to be able to integrate scientific knowledge and experiences of the local communities, as the impacts of climate change are context-specific and locally appropriate solutions are needed (Hickmann, 2021). Digital environmental monitoring platforms, participatory planning mechanisms, climate information systems and collaborative adaptation initiatives are just a few of the examples of governance innovation that increase governance efficiencies and responsiveness in environmental management (Ravi & Brück, 2025).

Community climate resilience is a key concept in climate adaptation research as a community is often the first community to be impacted by environmental hazards. Community climate resilience is defined as the capacity of people, communities, and local institutions to anticipate, withstand, recover from, and adapt to climate-related disturbances. The key factors of resilient communities are their adaptive capacities, such as their ability to access information, cooperate socially, prepare for disaster situations, have access to resources, and receive effective institutional support from others (Meerow et al., 2016). The social and institutional relationships that affect the collective reactions to climate risks, however, are also important to resilience, not just physical infrastructure or financial resources. Hence, it is now more crucial than ever to grasp governance mechanisms that enhance community resilience in today's environmental research.

An important process that affects the effectiveness of environmental governance innovation is institutional trust. Institutional trust is the confidence citizens have in public institutions in terms of their competence, transparency, fairness, and their dedication to serving society's interests. In the field of climate governance, trust plays a crucial role in the acceptance of environmental policies, the involvement of communities in adaptation measures, and the implementation of governmental measures. Even with well-designed climate policies, a lack of institutional trust can lead to resistance from skepticism about the policies, low participation, and limited public engagement with the policies (Maeda et al., 2026). Trust is a social ground that links governance processes to their behavioral reactions and can enable communities to build their collective climate action from institutional initiatives (Weber, 2010).

There has been growing interest in studying how the innovative environmental governance process affects the level of institutional trust, as these innovative processes can improve transparency, accountability, and citizens' participation. Increasing community engagement in environmental decision-making processes is likely to increase the community's sense of the legitimacy and responsiveness of institutions. Participatory governance provides avenues for communication between actors and citizens, enhances information about the process, and boosts trust in fairness (Hogl et al., 2012). Likewise, digital technologies and open environmental data systems can enhance

institutional trust and enhance a community's ability to track environmental conditions and measure the effectiveness of policy. Thus, indirectly, environmental governance innovation could help build the institutional trust of community members, which can help enhance climate resilience.

Previous studies have proven that trust in institutions has a significant impact on climate adaptation action. The more people in a community trust their environmental institutions, the more likely they are to follow through on environmental policies, engage in adaptation measures, and coordinate response efforts during environmental crises. However, if the trust in institutions is low, the people may not adopt or participate in government programs to achieve a climate-resilient community (Konisky et al., 2008). This suggests that, in addition to being a result of governance quality, institutional trust is also a critical pathway by which governance innovations lead to resilience outcomes.

While governance innovation and trust are gaining recognition and a growing presence in the literature on climate adaptation, there are several research gaps. First, studies so far have tended to focus on the direct link between environmental governance practices and climate resilience and paid less attention to the mechanisms that explain the link. Second, while institutional trust has been seen to be important for environmental cooperation, not many studies have been conducted in an empirical way to examine the mediating role of institutional trust between innovation in governance and community resilience. Third, most of the existing research is done in developed countries, and developing countries where the vulnerability to climate change is high need research. There are countries like Pakistan, Bangladesh, and other South Asian countries that are exposed to high climate risks, but have institutional problems regarding governance capacity, public participation, and trust building (Adger et al., 2003).

Environmental governance innovation and institutional trust are of special interest in the context of developing countries, where the impact of climate change is growing fast. Recent climate-related disasters have shown that to be resilient – just as well as having financial resources – there needs to be strong institutional coordination and community involvement. For instance, as the climate adaptation agenda has progressed, there has been a growing focus on inclusive governance models, in which local communities play a role in the planning, implementation and monitoring of climate adaptation. These methods enhance long-term resilience outcomes and increase the ownership of adaptation strategies (Bai et al., 2017).

Thus, this study seeks to explore the link between innovation in environmental governance and climate resilience of the community and test the mediation effect of institutional trust. Through combining the theory of governance innovation with institutional trust perspectives, this research brings a deeper understanding of how innovative governance practices lead to the strengthening of the capacity of a community to adapt to climate change at the community level. Overall, the study has theoretical implications since it clarifies how governance innovation relates to resilience, and it also has practical implications as it offers policymakers insights to create effective and socially acceptable strategies to adapt to climate change. Specifically, this research aims at four goals: the effect of environmental governance innovation on community climate resilience, the link between environmental governance innovation and institutional trust, the link between institutional trust and community climate resilience, and lastly, whether institutional trust acts as a mediator between environmental governance innovation and community climate resilience.

Literature Review

Environmental Governance Innovation

Environmental governance innovation is the change of the traditional environmental governance system, which is manifested in the introduction of new environmental governance policies, institutional mechanisms, technology, and collaborative mechanisms to improve environmental governance decision-making and environmental sustainability outcomes. Innovative environmental governance goes beyond government authority and regulatory governance, and places greater importance on creating opportunities for participation, decentralization, knowledge sharing, transparency and cooperation between multiple stakeholders—such as governments, communities, private organizations and civil society institutions—than does traditional governance (Termeer et al., 2011). Recent studies emphasize the complexity of climatic challenges as a result of climate change, which cannot be handled by centralized governance systems and thus needs new governance approaches that are able to offer adaptive, inclusive solutions (Cavalheiro et al., 2025).

Participation, digital environmental management, policy experimentation, institutional flexibility, and collaboration of stakeholders are important elements of environmental governance innovation. Participatory mechanisms facilitate community input and experience, enhancing the effectiveness and uptake of environmental policies. Likewise, digital technologies like environmental monitoring systems, climate databases and data-sharing platforms strengthen institutional capacities through transparency and better coordination and communication between institutions and communities (Mdleleni et al., 2025). Thus, environmental governance innovation is more than just an innovation – it is a larger institutional shift, with the expectation that it improves the capacity of environmental systems to effectively face the uncertainties of climate change.

Institutional Trust

Institutional trust is the trust people put in the capacity, fairness, reliability, and honesty of public institutions that deal with societal problems. In governance of the environment, institutional trust is the citizens' trust in environmental governance institutions that they are competent, transparent, accountable, and have a commitment to safeguarding community interests. A key factor in good governance is also the presence of trust, as it is known that the adaptation to climate change depends on the cooperation between institutions and citizens (Brechin & Bhandari, 2011).

Trust within institutions builds over time as communities and institutions interact with each other in a positive manner. The factors that help build stronger trust relationships include transparency, effective service delivery, public participation, procedural fairness, and institutional responsiveness. On the other hand, poor design of environmental institutions, particularly in the context of corruption and lack of good policy implementation, can undermine public confidence in them (Zannakis et al., 2015). A critical area where trust is important in climate governance is when it comes to the participation of the public in adaptation actions and a shift in behavior, as well as the collaboration with government-led programs. Recent studies highlight the importance of institutional trust as a social pillar to environmental governance, as it is important for communities to have trust and legitimacy in institutions to support climate policies. Therefore, institutional trust is a product of good governance and also a key process that affects the governance intervention at the community level.

Community Climate Resilience

Community climate resilience is the ability to anticipate, prepare for, respond to, recover from, and adapt to climate risks, while keeping key social and economic services running. Climate resilience is not only about the physical but also about the social networks, institutional relationships, knowledge systems, adaptive capacity and collective action abilities (Meerow et al., 2016). Resilient communities have the capacity to detect environmental hazards, call for

resources, exchange information, and coordinate responses in times of a climate-related disaster. Recent research suggests that social and institutional dimensions are key to any community's climate resilience as they rely on supportive governance arrangements to effectively adapt to climate change (Adger et al., 2022). Building resilience needs to be done in collaboration with communities and institutions, where residents are able to be involved in climate adaptation plans and implementation.

Hypothesis 1: Community Climate Resilience has a positive relationship with Environmental Governance Innovation.

The value of innovation in environmental governance as a driver of community climate resilience has been emerging as a key factor. Innovative governance models are essential for enhancing resilience through increasing adaptive capacity, engaging more stakeholders, and improving multi-institutional and multi-community coordination. Traditional environmental governance processes are frequently based on a centralized decision-making process and may not account for local vulnerabilities and community-specific knowledge. On the other hand, innovative governance models foster a collaborative decision-making process and empower communities to take part in climate adaptation processes (Hickmann, 2021). Participatory governance mechanisms help to build resilience by fostering community-environmental institution linkages. Involvement in environmental planning and decision-making increases community awareness of climate risks as well as their capacity to act for adaptation. In addition, governance innovation opens the way to better access to environmental information, which empowers communities to take informed decisions on climate risk and resource management (Newig & Kvarda, 2012).

Digital innovation is also a key component of environmental governance innovation. The technology of climate monitoring, digital platforms, and open environmental data systems enhance communication between the authorities and citizens. The technologies enable communities to get early warning, track environmental changes, and be involved in climate-related decision-making processes (Raihan, 2025). These innovations enhance preparedness and build resilience of communities to environmental shocks. Additionally, adaptive governance systems create a culture of learning and flexibility within institutions, allowing communities and institutions to adjust to uncertain climate conditions. Governance systems that are collaborative, experimental, and based on the sharing of knowledge have been shown to be more resilient, enabling communities to address issues in a way that is unique to their context (Cavalheiro et al., 2025).

Hypothesis 2: Environmental Governance Innovation has a positive impact on Institutional Trust.

Environmental governance innovations are part of a broader range of institutional trust-building measures, such as transparency and holding public officials accountable while engaging citizens. There is a strong relationship between community trust in institutions and its view of the processes of governance and whether its concerns are considered in environmental decision-making. Innovative governance structures provide space for community participation in a meaningful way that increases community perceptions of the legitimacy of the governance institutions. Citizens who are involved in the planning and policymaking process around the environment are more likely to perceive that institutions are fair, responsive, and accountable. Involving communities in the process lessens the distance between the authorities and the communities, leading to higher confidence in institutional performance (Holley, 2010). In addition, innovations are also contributing to increased transparency, with digital governance platforms and environmental information systems helping to enhance public access to information. Some of the added value of having more environmental data available is that citizens have more information to assess the performance of institutions and less uncertainty in enforcing policies. Recent studies have shown that institutions that exhibit openness and accountability do better at building long-term trust relations with communities (Mickwitz

et al., 2009). Environmental governance innovation also contributes to institutional credibility by showing institutional capacity to respond to environmental challenges. If communities see the effective management of their environment and the policy is implemented appropriately, their faith in the institutions grows. Innovative governance mechanisms are thus key factors of institutional trust.

Hypothesis 3: Community Climate Resilience is positively affected by Institutional Trust.

Community climate resilience is heavily dependent on institutional trust, as it depends on citizens and institutions working together to adapt to climate change. Institutional trust is correlated with community involvement in environmental programs, adapting to climate change recommendations, and working together in the event of climate change-related emergencies (Kessler, 2021). Trust boosts resilience through better communication, greater collective action, and greater acceptance of climate policies. In times of environmental crisis, the institutions provide communities with information, resources, and emergency support. If institutions are trusted and are seen as knowing what they're doing, the community reacts better to threats posed by climate. Past research indicates that there is a positive relationship between institutional trust and social cohesion and collaborative behavior. Collective action, such as by households, communities, and government organizations, is needed to adapt to climate change. If someone doesn't trust the institution, they may be less likely to be receptive to institutional efforts and/or may be less likely to participate in activities that support resilience (Trell & Van Geet, 2019). Hence, institutional trust is one of the social mechanisms that can be seen as turning institutional activities into tangible results of resilience.

Hypothesis 4: Community Climate Resilience is mediated by Institutional Trust when it comes to the relationship between Environmental Governance Innovation.

While there is a direct impact on community climate resilience, environmental governance innovation may also impact community climate resilience indirectly via institutional trust. Governance innovations provide conditions that enhance transparency, participation, and institutional accountability. The improvements increase citizens' trust in institutions, leading to increased citizens' participation in climate adaptation activities. The relevance of institutional trust as a mechanism linking governance innovation and resilience is rooted in the fact that these innovative governance practices can have a minimal or no effect if not accepted and co-operated with by the public. It is essential that communities have confidence in the institutions before they are willing to actively participate in environmental programs and adaptation strategies. Recent research suggests that, besides institutional capabilities, social legitimacy is also a key factor in the effectiveness of climate governance. Governance innovations that build trust are more likely to create sustainable resilience outcomes as communities see the adaptation initiatives as credible and beneficial (Taniguchi & Marshall, 2018). Accordingly, the drivers of trust in institutions are considered to be the mechanism through which better governance of the environment is converted into better resilience of the communities.

Methodology

The research method used in this study is quantitative research. This study examined the relationship between innovation in environmental governance, trust in institutions, and the resilience of the local community to climate change. Primary data was collected using a cross-sectional survey design, which is a design used to obtain primary data during one specific time of the study. The study targeted communities in climate-sensitive areas of Pakistan that have faced or are vulnerable to Environmental challenges, including floods, Extreme weather events, and Climate risks. The study was limited to selected urban and semi-urban areas of Pakistan where climate adaptation and environmental governance issues are growing in importance. Sampling approach: Purposive sampling was used to

ensure that the participants had relevant experiences and awareness of environmental governance and climate-related issues, with a sample size of 350 respondents.

The data were obtained using a structured questionnaire that contained the items for measurement. These items were extracted from previously validated surveys. A five-point Likert scale was used for all variables (strongly disagree to strongly agree). The scale of environmental governance innovation was determined by the following: participatory environmental governance process, policy innovation, transparency, technological integration, and collaboration among stakeholders. The indicators used to measure institutional trust included indicators on institutional reliability, competence, fairness, accountability, and public confidence. The five measures of community climate resilience were: adaptive capacity, disaster preparedness, community cooperation, access to climate information, and climate-responsiveness.

Data collected were analyzed with the Statistical Package for the Social Sciences (SPSS). Demographic characteristics of the respondents were summarized with descriptive statistics, and patterns of the study variables were summarized. The internal consistency of measurement scales was checked using reliability analysis, and Cronbach's alpha was adopted. A correlation analysis was used to determine relationships between environmental governance innovation, institutional trust, and community climate resilience. The direct effects hypothesized were tested with multiple regression. Moreover, mediation analysis was conducted to determine if there is a mediation effect between environmental governance innovation and community climate resilience. Ethical research principles were followed throughout the study, including ensuring all participants signed informed consent forms, that responses were kept confidential, and that participants were not forced to participate.

Data Analysis

All the collected data were analyzed using the Statistical Package for the Social Sciences (SPSS). The data analysis included demographic analysis, reliability test, descriptive data analysis, correlation data analysis, regression data analysis, and mediation data analysis. The relationships between environmental governance innovation (EGI), institutional trust (IT), and community climate resilience (CCR) were examined, and the proposed hypotheses were tested using these statistical techniques.

Demographic Analysis

Frequency and percentage analysis of the demographic characteristics of the respondents was conducted. The demographic profile consisted of gender, age, education level, and area of residence.

Table 1
The Demographic Characteristics of Respondents (N = 350).

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	210	60.0
	Female	140	40.0
Age	18–30 years	125	35.7
	31–45 years	150	42.9
	Above 45 years	75	21.4
Education	Secondary Education	80	22.9
	Bachelor Degree	165	47.1
	Master Degree or Above	105	30.0
Area	Urban	190	54.3
	Semi-Urban/Rural	160	45.7

The demographic profile of the respondents is given in Table 1. The results show that 60% of the participants were male, while 40% were female. The majority of the respondents (42.9%) were aged 31-45 years, while 35.7% of the respondents were aged from 18-30 years. As for educational qualifications, the majority held a Bachelor's degree (47.1%), suggesting the participants had an adequate level of educational awareness to grasp environmental governance and climate-related issues. The sample consisted of urban and semi-urban/rural populations, both of which were able to represent various community perspectives.

Reliability Analysis

To test the internal consistency and reliability of the measurement scales, Cronbach's alpha test was carried out. Cronbach's alpha > 0.70 is considered satisfactory.

Table 2

The Reliability Analysis of the Study Variables

Construct	Number of Items	Cronbach's Alpha
Environmental Governance Innovation	8	0.871
Institutional Trust	6	0.846
Community Climate Resilience	7	0.883

As shown in Table 2, all the constructs had acceptable internal consistency scores. The Cronbach's alpha value for Environmental Governance Innovation was 0.871, for Institutional Trust was 0.846, and for Community Climate Resilience was 0.883, which is the highest reliability value. All values were above the recommended value of 0.70, indicating that the measurement scales were valid and appropriate for further statistical analyses.

Descriptive Statistics

All the variables were considered with descriptive statistics in terms of mean values and standard deviation.

Table 3

Descriptive Statistics

Variable	Mean	Standard Deviation
Environmental Governance Innovation	3.98	0.72
Institutional Trust	3.76	0.68
Community Climate Resilience	4.05	0.70

Table 3 shows the descriptive statistics of the study variables. The mean score of Environmental Governance Innovation was 3.98, indicating that respondents' perception of environmental governance practices was relatively high. The mean score for Institutional Trust was 3.76, indicating a relatively high level of institutional trust among the respondents. The highest mean score was for Community Climate Resilience (4.05), suggesting that respondents felt that their communities were relatively capable of responding to climate-related challenges.

Correlation Analysis

Pearson correlation analysis was performed to determine the strength and direction of relationships among the variables.

Table 4*Correlation Matrix*

Variables	EGI	IT	CCR
Environmental Governance Innovation (EGI)	1		
Institutional Trust (IT)	0.562**	1	
Community Climate Resilience (CCR)	0.641**	0.598**	1

****Note:** $p < 0.01$ **

The correlation results show that all variables are significantly positively correlated. The relationship between Environmental Governance Innovation and Institutional Trust demonstrated a significant positive correlation ($r = 0.562$, $p < 0.01$), which means the higher the level of Environmental Governance Innovation, the higher the level of public trust in the institutions. In addition, Environmental Governance Innovation was positively associated with Community Climate Resilience ($r = 0.641$, $p < 0.01$). Community Climate Resilience was also significantly positively related to Institutional Trust ($r = 0.598$, $p < 0.01$). The results are a first indication for the proposed hypotheses.

Regression Analysis for Hypothesis Testing

To check the direct relationship among the variables used in the study, multiple regression analysis was used.

Hypothesis 1: Community Climate Resilience has a positive relationship with Environmental Governance Innovation.

Table 5*The Regression Analysis Data (EGI $\rightarrow$ CCR).*

Independent Variable	Beta (β)	t-value	Sig.
Environmental Governance Innovation	0.641	13.84	0.000

 $R^2 = 0.411$

F-value = 191.27

Based on the regression results, it can be concluded that Environmental Governance Innovation is a significant predictor of Community Climate Resilience ($p < 0.001$, $\beta = 0.641$). The R^2 value of 0.411 indicates that environmental governance innovation explains 41.1% of the variation in community climate resilience. Hence, on the question of innovation in environmental governance, the answer is that innovative governance practices increase community resilience, as is evident in this case.

Hypothesis 2: Environmental Governance Innovation has a positive impact on Institutional Trust.

Table 6*Regression Analysis (EGI $\rightarrow$ IT)*

Independent Variable	Beta (β)	t-value	Sig.
Environmental Governance Innovation	0.562	12.36	0.000

 $R^2 = 0.316$

F-value = 152.77

The results suggest that the variable Environmental Governance Innovation is significant for the variable Institutional Trust ($\beta = 0.562, p < 0.001$). The R^2 value illustrates the extent of the variance in institutional trust that is accounted for by governance innovation, which accounts for 31.6% of the variance. Thus, the presence of H2 suggests that participatory and transparent governance facilitates citizens' confidence in institutions.

Hypothesis 3: Community Climate Resilience is positively affected by Institutional Trust.

Table 7
Regression Analysis (IT → CCR)

Independent Variable	Beta (β)	t-value	Sig.
Institutional Trust	0.598	13.21	0.000

$R^2 = 0.357$
F-value = 174.50

According to the regression analysis, Institutional Trust significantly explains Community Climate Resilience ($\beta = 0.598, p < 0.001$). The findings indicate that communities with greater institutional trust have increased climate resilience. Hence, H3 is accepted.

Mediation Analysis

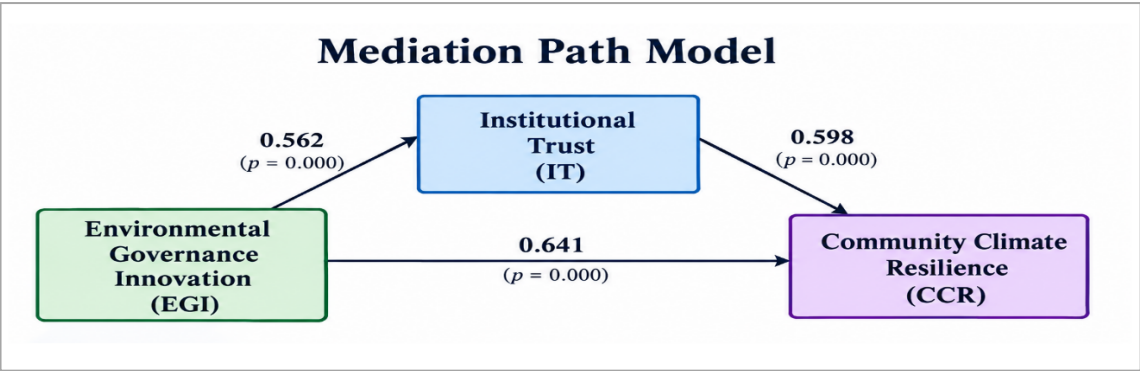
To test the mediating role of Institutional Trust, regression-based mediation analysis was used.

Hypothesis 4: Community Climate Resilience is mediated by Institutional Trust when it comes to the relationship between Environmental Governance Innovation.

Table 8
The Mediation Analysis Results

Relationship	Direct Effect	Indirect Effect	p-value	Result
EGI → CCR	0.641	—	0.000	Significant
EGI → IT	0.562	—	0.000	Significant
IT → CCR	0.598	—	0.000	Significant
EGI → IT → CCR	—	0.336	0.001	Mediation Supported

Figure



The mediation analysis shows that the relationship between Environmental Governance Innovation and Community Climate Resilience is indeed mediated by Institutional Trust. The indirect effect (0.336) was not null and statistically

significant ($p < 0.001$), suggesting that governance innovation has a direct effect on improving resilience, at least through an increase in institutional trust. So, the statement H4 is accepted. The results show that innovative governance mechanisms enhance the climate resilience of communities both by directly improving their resilience and building trustful relationships between communities and institutions.

Discussion of Findings

This study's findings offer empirical evidence on the link between environmental governance innovation and institutional trust and community climate resilience. The results show that innovation in governance is a significant factor in reinforcing climate resilience within the community and that trust in institutions is one of the links between governance innovation and positive outcomes in resilience. The results align with theoretical assumptions of climate adaptation that not only technological and policy innovations are needed but so are robust institutional links and community engagement.

The first hypothesis is that environmental governance innovation is related to community climate resilience. The results showed that there is a very strong positive correlation, meaning that communities with highly innovative environmental governance have a greater ability to anticipate, react, and adapt to climate-related pressures. This finding aligns with earlier studies that highlight the value of adaptive and collaborative governance systems to build resilience, which include the incorporation of local knowledge, better coordination, and increased collective participation (Molenveld et al., 2020). Environmental governance innovation makes communities more than just the recipient of government actions, and more than just an actor in the process of climate adaptation. Hickmann (2021) found that multi-level sustainability governance helps build local adaptive capacity by fostering local communities' linkages to wider institutional processes. Recent studies also show that governance innovation has a positive impact on climate adaptation outcomes, through fostering institutional flexibility, participation of stakeholders and knowledge exchange (Cavalheiro et al., 2025).

The findings also corroborate existing literature that governance arrangements which enable participation and information sharing are key to community climate resilience. Adger et al. (2022) stated that social and institutional capacities are needed as well as physical adaptation components to build resilience. This argument is further supported by this study, which shows how innovative governance mechanisms such as participatory decision-making and transparent environmental management directly strengthen communities' resilience. Governance innovation can offer communities better access to climate information, adaptation resources, and institutional support in the context of developing countries like Pakistan, in which climate vulnerability levels are rising.

The second hypothesis explored how environmental governance innovation impacts institutional trust. The results showed that governance innovation has a positive effect on institutional trust, meaning that transparent, participatory, and accountable governance systems enhance citizens' trust in environmental institutions. This finding aligns with previous studies that have found that institutions that are competent, fair, and responsive to community issues build trust (Taniguchi & Marshall, 2018). The future of innovative governance is to diminish the gap between institutions and communities, providing opportunities for public participation and joint decisions.

For environmental policies, which are likely to call for citizens' behavioral cooperation, the link between governance innovation and trust is of special interest. The communities are more likely to accept climate policies and to engage in adaptation if they feel institutions are open and transparent to them. Newig and Fritsch (2009) highlighted that citizen participation in the environmental governance process enhances institutional legitimacy by enabling citizens to gain more confidence in the governance process. Likewise, research on digital environmental governance in the last few years has shown that public confidence in environmental authorities can be boosted with

the availability of trustworthy information and transparent monitoring systems (Mdleleni, 2025). Accordingly, the results suggest that governance innovation is not just a technical innovation but also a process, contributing to the legitimacy of the institution.

The third hypothesis was to explore how community climate resilience is related to institutional trust. The results indicated that trust in institutions has a significant effect on the resilience of the community to climate change. The result corroborates earlier research indicating that trust between communities and institutions is an essential social asset to help facilitate cooperation in the event of an environmental risk (Tranter et al., 2023). Climate adaptation policies are more likely to be implemented in communities that have high institutional trust, as well as involvement in disaster preparedness programs and collaboration with environmental authorities.

Institutional trust is needed in order to enhance resilience, as it is a matter of collective action and not individual efforts to adapt to climate change. In the event of a climate-related disaster, communities rely on institutions to provide them with accurate information, to help them cope with the disaster, and to bring them together in response. If institutions are seen as trustworthy and competent, communities are more likely to take part in activities promoting resilience. This study by Mees and Driessen (2019) revealed that citizens' trust in the institutions leads to a higher level of trust in the legitimacy and usefulness of institutional actions, which in turn encourages their involvement in climate adaptation efforts.

The fourth hypothesis looked at the relationship between institutional trust and community climate resilience as a mediating variable between environmental governance innovation. After the mediation results, it was clear that institutional trust is a significant element in explaining how governance innovation contributes to resilience outcomes. The result indicates that innovative governance mechanisms contribute to resilience not only by enhancing environmental management, but also in terms of increased trust relationships between the institutions and communities.

The finding adds to a growing body of work in the field of climate governance, as it clarifies the "how" of the governance innovation's effect on resilience. Past research has primarily examined a direct link between governance and the environment, and only a few have investigated social processes, such as trust. The results show that there is a link between governance improvement and community-level capacity to adapt, through institutional trust. Alternatively, governance innovations may not get the results they seek, as communities may reject policies or may not be engaged enough to join adaptation programs without trust.

The results are consistent with the overall findings that point to a need for a mix of institutional capacities, innovation, and social legitimation for effective climate governance. To advance the effectiveness of climate governance, OECD (2025) notes that governments need to bring together policy innovation and public participation alongside institutional trustworthiness. Latupeirissa et al. (2026) also claim that green governance approaches should be strengthened by better institutions and participatory mechanisms for sustainable environmental outcomes. These results highlight the need to create climate policies that focus on both effectiveness and public confidence.

This study contributes to the literature on environmental governance by showing that the innovation of environmental governance, with institutional trust, is crucial to the development of community climate resilience. The results indicate that there is a need for policymakers to pay attention to establishing transparent, participatory, and inclusive governance systems that are participative and enhance confidence in environmental institutions. In addition to technological and policy innovations, enhancing institutional trust, which drives the uptake and engagement of communities with climate adaptation measures, can be as crucial as the other innovations, especially in countries at risk of climate change impacts.

Conclusion

In this study, environmental governance innovation and community climate resilience were explored, and the role of institutional trust was investigated in the relationship between them. The study sought to provide insights on the impact of innovative governance processes on communities' capacity to effectively address climate issues and how trust in environmental institutions matters to enhance this engagement. The results offer important lessons on the need to integrate institutional innovation and social trust in creating effective strategies for climate adaptation.

The findings show that innovation in environmental governance is an important factor in improving communities' climate resilience. Communities' capacity to proactively face, control, and adapt to climate change risks is enhanced through innovative governance practices, such as participatory decision-making, transparent environmental management, technological integration, and multi-stakeholder collaboration. The study reaffirms the need for a combination of physical infrastructure or technical solutions, and appropriate governance structures, which facilitate community participation and adaptation capacity to enhance climate resilience. Involving communities in environmental decision-making increases both awareness and ownership and responsibility of the community for climate adaptation.

The study also finds that environmental governance innovation has a strong impact on institutional trust. Governance systems that encourage transparency, accountability, and public engagement foster enhanced community-institution relations around environmental issues. Citizens' confidence in environmental authorities grows as the perceived trust in institutions is high, responsive, and inclusive. This trust is critical as it enables communities and institutions to work together in climate adaptation. However, even if well-designed, environmental policies can be challenging to implement if public confidence is low because they are not well accepted or have not achieved community involvement.

The results also point to the critical importance of institutional trust in enhancing the climate resilience of communities. Institutional trust in communities is associated with involvement in adaptation programs, adherence to environmental policies, and collaboration in environmental emergencies. Building trust in institutions promotes collective action through better communication, coordination, and mobilization of resources between communities and institutions. So, trust should be part of the climate resilience toolbox and not be a by-product of good governance.

One of the key findings of this study is that institutional trust is a mediating mechanism between environmental governance innovation and community climate resilience. The results show that governance innovation not only affects resilience directly in the form of better environmental management, but it also has an indirect effect through enhancing the trust relationship. This is because communities are more likely to be successful with innovative governance approaches when they feel that institutions can be effective, fair, and focused on environmental issues. Therefore, establishing trust should be a key priority for policymakers looking to enhance climate adaptation outcomes.

Practically, the study recommends that policymakers and environmental institutions pay attention to building inclusive environmental governance systems and engaging communities in environmental planning and decision-making. Climate information should be made more transparent, more available, and more participatory, and communication with the local population should be enhanced by institutions. These can help strengthen institutional credibility and enhance the impact of climate resilience efforts.

The study further underscores the need to consider social and institutional factors in formulating climate adaptation policies, especially in developing countries where communities are likely to be highly vulnerable to climate change. It is not enough to have financial resources and technical solutions—it's important that there are good relationships between institutions and society in order to achieve effective climate governance. Increasing institutional trust can facilitate the adoption of environmental policy to effective community measures and community resilience outcomes.

While valuable insights were gained from this study, further research is needed to investigate other Climate Resilience factors that include environmental awareness, social capital, leadership effectiveness, and community empowerment. A longitudinal research design and a comparison of governance innovation and trust between different geographical areas could also be used in future studies to analyse the evolution of governance innovation and trust over time.

Overall, this research provides a basis for concluding that innovation and trust are main components of environmental governance for enhancing community climate resilience. Innovative governance systems provide opportunities for participation and collaboration; institutional trust helps to ensure that communities are engaged in climate adaptation. A governance innovation/building trust approach could be used to create more effective, inclusive, and sustainable environmental institutional solutions to solve future climate challenges.

References

- Adger, W. N., Huq, S., Brown, K., Conway, D., & Hulme, M. (2003). Adaptation to climate change in the developing world. *Progress in Development Studies*, 3(3), 179-195. <https://doi.org/10.1191/1464993403ps060oa>
- Bai, X., McPhearson, T., Cleugh, H., Nagendra, H., Tong, X., Zhu, T., & Zhu, Y. (2017). Linking urbanization and the environment: Conceptual and empirical advances. *Annual Review of Environment and Resources*, 42(1), 215-240. <https://doi.org/10.1146/annurev-environ-102016-061128>
- Brechin, S. R., & Bhandari, M. (2011). Perceptions of climate change worldwide. *WIREs Climate Change*, 2(6), 871-885. <https://doi.org/10.1002/wcc.146>
- Cavalheiro, E. A., Oliveira, I. R., Leandro, D., & Kontz, L. B. (2025). Governance, development, and environment: Pathways to a sustainable future. *Sustainable Futures*, 10, 100813. <https://doi.org/10.1016/j.sftr.2025.100813>
- Hickmann, T. (2021). Locating cities and their governments in multi-level sustainability governance. *Politics and Governance*, 9(1), 211-220. <https://doi.org/10.17645/pag.v9i1.3616>
- Hogl, K., Kvarda, E., Nordbeck, R., & Pregernig, M. (2012). Legitimacy and effectiveness of environmental governance—concepts and perspectives. In *Environmental Governance*. Edward Elgar Publishing.
- Holley, C. (2010). Public participation, environmental law and new governance: Lessons for designing inclusive and representative participatory processes. *Environmental Law and New Governance: Lessons for Designing Inclusive and Representative Participatory Processes (September 2010)*. *Environmental and Planning Law Journal*, 27(5), 360-391
- Kessler, E. L. (2021). Climate change concern among youth: Examining the role of civics and institutional trust across 22 countries. *Education Policy Analysis Archives*, 29(August - December), 124. <https://doi.org/10.14507/epaa.29.4849>
- Konisky, D. M., Milyo, J., & Richardson, L. E. (2008). Environmental policy attitudes: Issues, geographical scale, and political trust. *Social Science Quarterly*, 89(5), 1066-1085. <https://doi.org/10.1111/j.1540-6237.2008.00574.x>
- Latupeirissa, J. J., Menguito, V. T., & Valencia, E. B. (2026). Green governance in public administration: A systematic review and bibliometric analysis of environmental policy implementation. *Journal of Policy Studies*, 41(2), 53-76. <https://doi.org/10.52372/jps.250295>
- Maeda, C. M., Namwata, B. M., & Kumburu, N. P. (2026). Local governance practices and public trust in the context of climate change adaptation in Monduli and Longido districts, Tanzania. *International Review of Public Administration*, 1-23. <https://doi.org/10.1080/12294659.2026.2646397>
- Mdleleni, L., Ngcamu, B. S., & Louw, V. (2025). Innovating Climate Governance: The Role of Public Administration in Policy Coherence and Inclusive Adaptation. *Journal of Public Administration and Development Alternatives (JPADA)*, 10(3), 252-269
- Meerow, S., Newell, J. P., & Stults, M. (2016). Defining urban resilience: A review. *Landscape and Urban Planning*, 147, 38-49. <https://doi.org/10.1016/j.landurbplan.2015.11.011>
- Mees, H., & Driessen, P. (2018). A framework for assessing the accountability of local governance arrangements for adaptation to climate change. *Journal of Environmental Planning and Management*, 62(4), 671-691. <https://doi.org/10.1080/09640568.2018.1428184>
- Mickwitz, P., Aix, F., Beck, S., Carss, D., Ferrand, N., Görg, C., ... & van Bommel, S. (2009). *Climate policy integration, coherence and governance*. Partnership for European Environmental Research.

- Molenveld, A., Van Buuren, A., & Ellen, G. (2020). Governance of climate adaptation, which mode? An exploration of stakeholder viewpoints on how to organize adaptation. *Climatic Change*, 162(2), 233-254. <https://doi.org/10.1007/s10584-020-02683-9>
- Newig, J., & Kvarda, E. (2012). Participation in environmental governance: legitimate and effective?. In *Environmental governance*. Edward Elgar Publishing.
- Newig, J., & Fritsch, O. (2009). Environmental governance: Participatory, multi-level – and effective? *Environmental Policy and Governance*, 19(3), 197-214. <https://doi.org/10.1002/eet.509>
- OECD. (2025). *Government at a Glance 2025: Governing for the Green Transition*.
- Patterson, J., De Voogt, D. L., & Sapiains, R. (2019). Beyond inputs and outputs: Process-oriented explanation of institutional change in climate adaptation governance. *Environmental Policy and Governance*, 29(5), 360-375. <https://doi.org/10.1002/eet.1865>
- Raihan, A. (2025). Frontiers in public policy: integrating sustainability, governance, and innovation for a changing world. *Frontiers*, 13, 14.
- Ravi, K., & Brück, A. (2025). Citizen Centered Climate Intelligence: Operationalizing Open Tree Data for Urban Cooling and Eco-Routing in Indian Cities. *arXiv preprint arXiv:2508.17648*. <https://doi.org/10.48550/arXiv.2508.17648>
- Taniguchi, H., & Marshall, G. A. (2018). Trust, political orientation, and environmental behavior. *Environmental Politics*, 27(3), 385-410. <https://doi.org/10.1080/09644016.2018.1425275>
- Termeer, C., Dewulf, A., Rijswick, H. V., Buuren, A. V., Huitema, D., Meijerink, S., Rayner, T., & Wiering, M. (2011). The regional governance of climate adaptation: A framework for developing legitimate, effective, and resilient governance arrangements. *Climate Law*, 2(2), 159-179. <https://doi.org/10.1163/cl-2011-032>
- Tranter, B., Lester, L., Foxwell-Norton, K., & Palmer, M. A. (2023). In science we trust? Public trust in intergovernmental panel on climate change projections and accepting anthropogenic climate change. *Public Understanding of Science*, 32(6), 691-708. <https://doi.org/10.1177/09636625231165405>
- Trell, E., & Van Geet, M. (2019). The governance of local urban climate adaptation: Towards participation, collaboration and shared responsibilities. *Planning Theory & Practice*, 20(3), 376-394. <https://doi.org/10.1080/14649357.2019.1629573>
- Weber, E. U. (2010). What shapes perceptions of climate change? *WIREs Climate Change*, 1(3), 332-342. <https://doi.org/10.1002/wcc.41>
- Zannakis, M., Wallin, A., & Johansson, L. (2015). Political trust and perceptions of the quality of institutional arrangements – how do they influence the public's acceptance of environmental rules. *Environmental Policy and Governance*, 25(6), 424-438. <https://doi.org/10.1002/eet.1676>