

Sustainability Policy

available at http: www.econjournals.com

Sustainability Policy, 2025, 1(1), 1-9.

Powerless at the Frontline: The Role of Biospheric Values and Afforestation Policy in Pakistan

Khalid Zaman*

Department of Economics, The University of Haripur, Haripur, Pakistan. *Email: khalid_zaman786@yahoo.com

Received: 15 June 2025 **Accepted:** 04 September 2025 **DOI:** https://doi.org/10.32479/sp.25417

ABSTRACT

Sustainability policies succeed or fail in the hands of the public employees who implement them. This study examines how operational policy powerlessness, the perceived lack of discretion while carrying out a policy, shapes two opposing implementation responses among forest field staff in Pakistan. Drawing on the policy alienation framework and value-belief-norm theory, we propose that operational policy powerlessness lowers willingness to implement the policy (IW) and raises behavioral resistance to the policy (BR). We further propose that biospheric values weaken both effects. Survey data from 258 field staff of the Punjab Forest Department implementing the Ten Billion Tree Tsunami Programme were analyzed with confirmatory factor analysis and moderated regression. Operational policy powerlessness was negatively related to IW and positively related to BR. Biospheric values buffered both relationships. Johnson-Neyman analyses showed that the adverse effects faded among implementers with strong biospheric values. The findings suggest that afforestation policy can protect its own delivery by granting field staff discretion and by recruiting and developing implementers who value nature.

Keywords: Policy Alienation, Operational Powerlessness, Policy Implementation, Biospheric Values, Afforestation Policy
JEL Classifications: H83, Q23, Q58

1. INTRODUCTION

Public policy reaches citizens through the daily choices of frontline employees. Lipsky (2010) described these employees as street-level bureaucrats whose discretion turns written policy into practice. Their reactions to a policy therefore shape whether its goals are met (Tummers et al., 2009). Recent work confirms that frontline responses remain central to implementation in many sectors, from homecare to welfare administration (Cerna-Aragon and García, 2025; Lévesque and Benoit, 2025).

Policy alienation is a leading lens for these reactions. Tummers (2012) defines it as a general cognitive state of psychological disconnection from the policy program being implemented. The construct has two broad dimensions, powerlessness and meaninglessness (Tummers, 2012). Implementers who identify with a policy invest more in its delivery, and this commitment supports policy performance (Tummers, 2011). Policy alienation has been linked to lower behavioral support for a policy and weaker intention to implement it (Tummers et al., 2015), as well as poorer wellbeing among street-level bureaucrats (Usman et al., 2021).

However, alienation is not uniform across its dimensions. Tummers (2011) found that perceived autonomy during implementation, labeled operational powerlessness, shaped change willingness, while influence at the national or organizational level did not. Operational powerlessness concerns the room implementers have to adapt a policy to the people they serve (Tummers, 2012). It is the form of powerlessness that frontline staff face each working day. Yet policy alienation research has drawn mainly on healthcare, education, and social security settings in Western countries (Tummers, 2011; Tummers et al., 2015; van Engen et al., 2016). Its relevance to environmental policy in the Global South remains largely untested.

This Journal is licensed under a Creative Commons Attribution 4.0 International License

Addressing this gap is important for two reasons. First, sustainability policies depend heavily on field implementers whose work is physical, dispersed, and hard to monitor. Large afforestation programs illustrate this dependence. Their outcomes depend on sustained field work and community involvement across large and remote areas (Abbas et al., 2023; Ullah, 2024). Second, the record of such programs shows clear implementation gaps. A special audit of Pakistan's Ten Billion Tree Tsunami Programme (TBTTP) in Punjab reported a shortfall of about 138 million plants against the target and 367 sites below the accepted survival benchmark (Auditor-General of Pakistan, n.d.). Understanding how implementers respond to the policy offers a route to closing such gaps.

The present study responds to this need by developing and testing a model of how and when operational policy powerlessness shapes two opposing implementation responses: willingness to implement the policy (IW) and behavioral resistance to the policy (BR). Using the policy alienation framework (Tummers et al., 2009), we contend that implementers who lack discretion over a policy disconnect from it. This disconnection reduces their readiness to invest effort in the policy and raises their readiness to oppose it. IW captures an implementer's intention to devote effort and time to a policy's success (Tummers et al., 2012). BR refers to concrete actions against a change, such as protesting or complaining about it (Oreg, 2006). Studying both responses matters because a policy can fail through quiet withdrawal of effort as well as through open opposition.

Finally, building on value-belief-norm theory (Stern et al., 1999; Stern, 2000), we argue that biospheric values determine the strength of these effects. Biospheric values reflect concern for nature and the environment for its own sake (de Groot and Steg, 2008). Value-belief-norm theory holds that such values activate personal norms to act in the interest of the environment (Stern, 2000). Recent evidence links stronger biospheric values to greater self-efficacy and intrinsic motivation for pro-environmental behavior at work (Wagner et al., 2025). Personal environmental dispositions also condition how organizational influences translate into green behavior. Environmental harmonious passion, for example, strengthens the link between spiritual leadership and employees' citizenship behavior for the environment (Anser et al., 2021). Implementers with strong biospheric values may therefore keep working for an environmental policy even when the policy constrains them. We test this buffering role in a sample of 258 field staff of the Punjab Forest Department.

This study makes three contributions. First, it extends the policy alienation literature, which has examined healthcare professionals, teachers, and welfare workers (Tummers, 2011; Tummers et al., 2015; Usman et al., 2021; Lévesque and Benoit, 2025) and, more recently, citizens' alienation from medical care policy (Xia et al., 2023), to the implementers of a national environmental program in a developing country. Second, it adds to research on frontline implementation in environmental governance. That work has examined political control, silence, and resistance inside environmental agencies (Bersch and Lotta, 2024; Story et al., 2023) and has evaluated afforestation outcomes from above (Abbas et al., 2023; Ullah, 2024). We show how individual implementers' experience of a policy relates to their willingness and resistance. Third, it contributes to research on environmental values at work, which has treated biospheric values as direct drivers of pro-environmental behavior (de Groot and Steg, 2008; Wagner et al., 2025). We show that these values also condition how employees react to policy constraints, not only how they respond to supportive practices. Together, these contributions connect the design of implementation arrangements with the values of the people who carry them out.

2. THEORY AND HYPOTHESES

2.1. Policy Alienation and Operational Powerlessness

The policy alienation framework adapts the sociological concept of work alienation to policy implementation (Tummers et al., 2009). Powerlessness refers to the influence implementers perceive over a policy. It operates at three levels. Strategic powerlessness concerns influence over the content of a policy at the national level. Tactical powerlessness concerns influence over how one's organization implements it. Operational powerlessness concerns the freedom implementers have while carrying out the policy in their own work (Tummers, 2012).

Operational powerlessness is closest to the classic notion of street-level discretion (Lipsky, 2010). Frontline staff rely on discretion to fit general rules to local conditions. When a policy removes this room, implementers cannot respond to the needs of those they serve. Tucker et al. (2022) showed that frontline staff use their discretion to respond to policy alienation, and that this response can either support or undermine implementation. In afforestation programs, forest staff work closely with local communities whose participation shapes restoration outcomes (Ullah, 2024). Rigid procedures that leave staff no room to adapt plans to communities can make the policy feel imposed rather than owned. Research on structural empowerment points the same way. Access to decision latitude and resources is one route through which leaders help employees cope with insecure and demanding work (Lu et al., 2024). Operational powerlessness reflects the absence of this latitude in policy work.

2.2. Operational Policy Powerlessness and IW

IW reflects an implementer's intention to put effort and time into realizing a policy's goals (Tummers et al., 2012). Tummers (2011) found that perceived autonomy during implementation predicted this willingness among healthcare professionals, while participation at higher levels did not. The logic is straightforward. Implementers who cannot exercise judgment experience the policy as a constraint on their professional role. They see less reason to promote the policy among colleagues or to invest extra time in it. Evidence from other frontline settings points the same way. The willingness of street-level bureaucrats to take on demanding tasks depends on the relational conditions of their work, such as trust (Cohen et al., 2024). Tummers et al. (2015) reported that policy alienation lowered both behavioral support for a policy and the intention to implement it. Forest field staff who must follow tight

procedures that ignore local conditions are likely to show a similar loss of willingness.

- Hypothesis 1: Operational policy powerlessness is negatively related to IW.

2.3. Operational Policy Powerlessness and BR

Lower willingness is a passive response. Implementers may also act against a policy. BR captures such actions, including looking for ways to prevent a change, protesting against it, and voicing objections to management (Oreg, 2006). Resistance by public employees is well documented in environmental administration. Bersch and Lotta (2024) traced how staff in Brazilian environmental agencies resisted political direction they disagreed with. Frontline workers facing precarious conditions also develop their own coping strategies, some of which depart from official expectations (Lotta et al., 2023). When field staff feel that a policy strips them of judgment, opposing it becomes a way to restore some control over their work. They may complain to colleagues, object to supervisors, or speak poorly of the program. Policy alienation should therefore raise resistance in the same way that it lowers willingness (Tummers et al., 2015).

- Hypothesis 2: Operational policy powerlessness is positively related to BR.

2.4. The Moderating Role of Biospheric Values

Value-belief-norm theory explains environmental action through a causal chain. Values shape beliefs about environmental threats, these beliefs activate a personal norm, and the norm guides behavior (Stern et al., 1999). Biospheric values sit at the start of this chain. They reflect the importance a person places on preventing pollution, respecting the earth, being in unity with nature, and protecting the environment (de Groot and Steg, 2008). The resulting obligation to act is self-generated. It does not depend on external rewards or on the conditions under which a person works.

This reasoning suggests that biospheric values can protect implementation when operational powerlessness is high. An afforestation program serves goals that implementers with strong biospheric values hold as their own. For them, planting and protecting trees expresses a personal norm, regardless of whether the policy grants discretion. Wagner et al. (2025) found that employees with stronger biospheric values reported higher self-efficacy and intrinsic motivation for pro-environmental behavior at work. Similarly, connectedness to nature carries the effects of green training into employees' eco-friendly behavior beyond formal work requirements (Usman et al., 2023). These resources should help such implementers keep working for the policy and refrain from opposing it, even when procedures feel restrictive. In contrast, implementers with weak biospheric values have no such internal anchor. Their response to the policy depends more on how the policy treats them. For them, powerlessness should translate more fully into withdrawn effort and active opposition.

- Hypothesis 3a: Biospheric values moderate the negative relationship between operational policy powerlessness and IW, such that the relationship is weaker when biospheric values are high.
- Hypothesis 3b: Biospheric values moderate the positive relationship between operational policy powerlessness and BR, such that the relationship is weaker when biospheric values are high.

Figure 1 presents the research model.

3. METHOD

3.1. Research Context

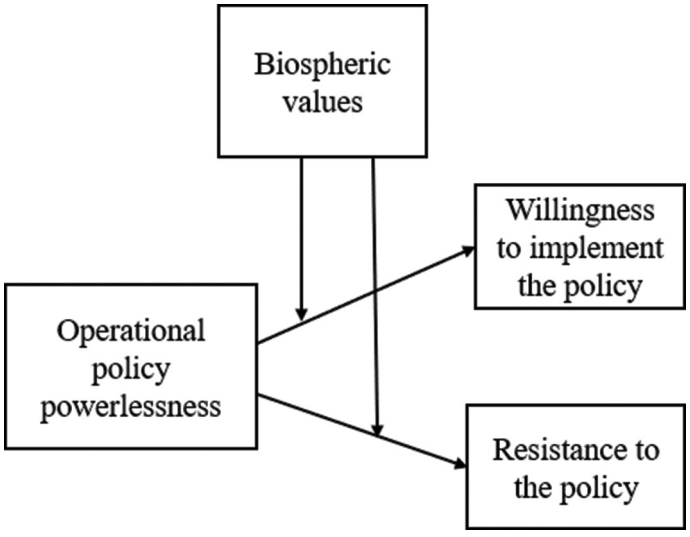
The TBTTP is Pakistan's largest afforestation program. Its first phase ran from 2019 to 2023 and aimed to plant or regenerate 3.29 billion plants across the provinces and territories (Maqbool, 2024). The program is implemented by provincial forest and wildlife departments through the federal Ministry of Climate Change (Maqbool, 2024). The updated National Climate Change Policy names it as a flagship initiative for climate-resilient, low-carbon development (Ministry of Climate Change, 2021). In Punjab, the Punjab Forest Department executed the program through its Chief Conservators of Forests, a project director, and divisional forest officers (Auditor-General of Pakistan, n.d.). Field work, including planting, nursery management, and site protection, is carried out by forest guards, block officers, foresters, and range forest officers. These staff interact daily with farmers and local communities. They are the street-level implementers of the policy.

3.2. Sample and Procedure

Data were collected from field staff of the Punjab Forest Department who were directly involved in implementing the TBTTP. Formal permission was obtained from the department before data collection. Questionnaires were distributed through divisional forest offices. The questionnaire was administered in Urdu. All items were translated from English and back-translated by two bilingual researchers.

Because all constructs were self-reported, we built several procedural remedies into the survey design (Podsakoff et al., 2003; 2012). First, to reduce evaluation apprehension and social desirability, participation was voluntary, no names or employee

Figure 1: Research model



numbers were recorded, and completed questionnaires were returned in sealed envelopes to a drop box rather than through supervisors. The cover letter stated that there were no right or wrong answers and that the department would see only aggregated results. Second, we created psychological separation between predictor and criterion measures. The questionnaire placed operational policy powerlessness and biospheric values in separate sections from IW and BR, with the demographic questions and the marker items in between, and each section had its own short introduction. Third, we varied response anchors. Biospheric values were rated on a five-point importance scale, while the other constructs used five-point agreement scales. Fourth, we reduced item ambiguity. The Urdu version was pretested with 12 field staff who did not take part in the main survey, and wording was simplified where respondents found it unclear. Fifth, we kept the questionnaire short to limit fatigue, and items were not grouped under construct labels, so respondents could not easily infer the hypothesized links.

Of the 400 questionnaires distributed, 267 were returned. We removed 9 responses that showed straightlining or incomplete answers on the focal scales, leaving 258 usable responses (64.50%). Respondents were on average 37.59 years old (SD = 7.55), and 20.54% were women. Average tenure in the department was 9.16 years (SD = 3.73). The sample comprised forest guards (n = 83, 32.17%), block officers (n = 63, 24.42%), foresters (n = 63, 24.42%), and range forest officers (n = 49, 18.99%).

3.3. Measures

All items referred explicitly to the TBTTP. Unless noted otherwise, responses were given on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The full items appear in Table 1.

- *Operational policy powerlessness.* We used the six-item operational powerlessness subscale of the policy alienation scale developed by Tummers (2012). References to the original policy and to patients were replaced with the TBTTP and local communities. A sample item is "Implementing the TBTTP feels like a harness in which I cannot easily move." Three items were reverse-coded.
- *Willingness to implement the policy.* IW was measured with five items from Tummers et al. (2012), who adapted them from Metselaar (1997). A sample item is "I intend to put effort into achieving the goals of the TBTTP."
- *Behavioral resistance to the policy.* BR was measured with the five-item behavioral component of the resistance to change scale developed by Oreg (2006). Items were worded in the present perfect to fit an ongoing program. A sample item is "I have complained about the TBTTP to my colleagues." One item was reverse-coded.
- *Biospheric values.* We used the four biospheric value items from de Groot and Steg (2008). Respondents rated the importance of each value as a guiding principle in their lives on a five-point scale, consistent with the other measures. The instrument has shown a stable structure and good reliability across five countries (de Groot and Steg, 2007).
- *Marker variable.* To detect common method variance, we included a theoretically unrelated marker variable, attitude toward the color blue (Miller and Simmering, 2023). We used four of the seven original items, a shortened form shown to detect common method variance as well as the full scale (Miller et al., 2024). A sample item is "I like the color blue." Responses were given on the same five-point agreement scale as the substantive measures, which is a requirement for an effective marker (Lindell and Whitney, 2001). Cronbach's alpha was 0.88.

Table 1: Measurement items and standardized factor loadings

Code	Item	Standardized loading
Operational policy powerlessness		
OP1	I have freedom to decide how to implement the TBTTP in my area. (R)	0.79
OP2	While implementing the TBTTP, I can respond to the needs of local communities. (R)	0.82
OP3	Implementing the TBTTP feels like a harness in which I cannot easily move.	0.85
OP4	When I implement the TBTTP, I have to adhere to tight procedures.	0.81
OP5	While implementing the TBTTP, I cannot sufficiently tailor my work to the needs of local communities.	0.82
OP6	While implementing the TBTTP, I can make my own judgments. (R)	0.79
Willingness to implement the policy (IW)		
IW1	I intend to try to convince colleagues of the benefits the TBTTP will bring.	0.77
IW2	I intend to put effort into achieving the goals of the TBTTP.	0.87
IW3	I intend to reduce resistance among colleagues regarding the TBTTP.	0.74
IW4	I intend to make time to implement the TBTTP.	0.81
IW5	I intend to put effort in order to implement the TBTTP successfully.	0.81
Behavioral resistance to the policy (BR)		
BR1	I have looked for ways to prevent the TBTTP from being implemented.	0.86
BR2	I have protested against the TBTTP.	0.84
BR3	I have complained about the TBTTP to my colleagues.	0.84
BR4	I have presented my objections regarding the TBTTP to management.	0.82
BR5	I have spoken rather highly of the TBTTP to others. (R)	0.83
Biospheric values		
BV1	Preventing pollution	0.84
BV2	Respecting the earth	0.83
BV3	Unity with nature	0.80
BV4	Protecting the environment	0.83

N=258. (R)=Reverse-coded. All loadings significant at $P<0.001$. Biospheric value items were rated as guiding principles in life on a five-point scale

Table 2: Convergent and discriminant validity

Construct	α	CR	AVE	MSV	OPP	BV	IW	BR
OPP	0.92	0.92	0.66	0.13	0.81			
BV	0.90	0.90	0.68	0.08	−0.22**	0.83		
IW	0.90	0.90	0.64	0.07	−0.24**	0.27**	0.80	
BR	0.92	0.92	0.70	0.13	0.35**	−0.28**	−0.25**	0.84

N=258. CR: Composite reliability, AVE: Average variance extracted, MSV: Maximum shared variance. Square roots of AVE are on the diagonal; off-diagonal values are latent factor correlations. OPP: Operational policy powerlessness, BV: Biospheric values, IW: Willingness to implement the policy, BR: Behavioral resistance to the policy. **P<0.01

- *Controls.* We controlled for age, gender (1 = man, 2 = woman), tenure, and job grade (1 = forest guard, 2 = block officer, 3 = forester, 4 = range forest officer). Job grade is relevant because higher grades may hold more formal discretion over field operations.

3.4. Analytical Strategy

We first assessed the measurement model with confirmatory factor analysis using maximum likelihood estimation. Convergent validity was evaluated through standardized loadings, composite reliability, and average variance extracted (Fornell and Larcker, 1981). Discriminant validity was assessed with two criteria. The first compared average variance extracted with maximum shared variance and with squared correlations between constructs (Fornell and Larcker, 1981). The second used the heterotrait-monotrait ratio of correlations, with values below 0.85 indicating adequate discrimination (Henseler et al., 2015). We then tested the hypotheses with PROCESS Model 1 (Hayes, 2022), run separately for IW and BR with age, gender, tenure, and job grade as covariates. Operational policy powerlessness and biospheric values were mean-centered before forming the product term. Significant interactions were probed with conditional effects at the mean of biospheric values and one standard deviation above and below it, and with the Johnson-Neyman technique (Hayes and Matthes, 2009).

4. RESULTS

4.1. Measurement Model

The four-factor model fit the data well, $\chi^2(164) = 194.39$, comparative fit index (CFI) = 0.99, Tucker-Lewis index (TLI) = 0.99, root mean square error of approximation (RMSEA) = 0.03, standardized root mean square residual (SRMR) = 0.04. All standardized loadings were significant and ranged from 0.74 to 0.87 (Table 1).

Table 2 reports reliability and validity statistics. Cronbach's alpha and composite reliability ranged from 0.90 to 0.92 across constructs. Average variance extracted ranged from 0.64 to 0.70, above the 0.50 threshold, supporting convergent validity (Fornell and Larcker, 1981). For every construct, average variance extracted exceeded maximum shared variance. The square root of average variance extracted, shown on the diagonal of Table 2, exceeded the construct's latent correlations with all other constructs (highest $|r| = 0.35$). These results support discriminant validity.

The heterotrait-monotrait ratio of correlations ranged from 0.21 to 0.35 (Table 3). All values were well below the 0.85 threshold (Henseler et al., 2015), providing further support for discriminant validity.

Table 3: Heterotrait-monotrait ratio of correlations

Construct	1	2	3	4
1. Operational policy powerlessness				
2. Willingness to implement the policy (IW)	0.25			
3. Behavioral resistance to the policy (BR)	0.35	0.24		
4. Biospheric values	0.21	0.28	0.28	

N=258

4.2. Common Method Variance

Because all data came from one source at one time, we took two statistical steps beyond the procedural remedies described above. In Harman's single-factor test, the first unrotated factor explained 32.66% of the variance, below the 50% benchmark. Common method variance is therefore unlikely to account for the results (Podsakoff et al., 2003).

We also applied the correlational marker technique (Lindell and Whitney, 2001; Williams et al., 2010). The marker, attitude toward the color blue (Table 4), was unrelated to operational policy powerlessness (r = −0.03), biospheric values (r = −0.03), IW (r = 0.04), and BR (r = −0.02), with all p values above 0.05. As a conservative estimate of method variance, we used the largest absolute marker correlation (rM = 0.04) rather than the smallest. After partialling it out, all six correlations among the substantive constructs remained significant (adjusted $|r|$ = 0.16-0.29, all $P < 0.05$) and kept their direction. Together with the results above, this indicates that common method variance does not threaten the conclusions.

4.3. Descriptive Statistics and Correlations

Table 4 presents means, standard deviations, and correlations. Operational policy powerlessness correlated negatively with IW (r = −0.23, $P < 0.01$) and positively with BR (r = 0.32, $P < 0.01$). Biospheric values correlated positively with IW (r = 0.25, $P < 0.01$) and negatively with BR (r = −0.26, $P < 0.01$). The mean for biospheric values was 3.16 on the five-point scale (SD = 1.25), which indicates moderate endorsement with adequate spread for moderation analysis.

4.4. Hypothesis Testing

Table 5 reports the PROCESS Model 1 results. Because the predictors were mean-centered, the coefficient of operational policy powerlessness gives its effect at the average level of biospheric values. Hypothesis 1 predicted a negative relationship between operational policy powerlessness and IW. After accounting for the covariates, operational policy powerlessness was negatively related to IW (b = −0.20, SE = 0.06, $P < 0.01$, 95% CI [−0.32, −0.08]). Hypothesis 1 was supported. Hypothesis 2 predicted a positive relationship with BR. Operational policy powerlessness

Table 4: Means, standard deviations, and correlations

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. Age	37.59	7.55	-								
2. Gender	—	—	−0.01	-							
3. Tenure	9.16	3.73	0.48**	−0.02	-						
4. Job grade	—	—	−0.12	−0.08	−0.06	-					
5. Operational policy powerlessness	3.13	0.96	0.02	0.02	0.02	0.06	(0.92)				
6. Biospheric values	3.16	1.25	−0.05	0.04	−0.01	0.01	−0.20**	(0.90)			
7. IW	3.01	0.97	0.10	0.05	0.01	−0.04	−0.23**	0.25**	(0.90)		
8. BR	3.05	0.99	−0.04	−0.05	−0.03	0.04	0.32**	−0.26**	−0.22**	(0.92)	
9. Marker variable	—	—	0.01	0.01	0.07	−0.03	−0.03	−0.03	0.04	−0.02	(0.88)

Cronbach's alpha on the diagonal in parentheses. Gender: 1=Man, 2=Woman. Job grade: 1=Forest guard to 4=Range forest officer. IW: Willingness to implement the policy, BR: Behavioral resistance to the policy, MV: Marker variable (attitude toward the color blue). *P<0.05. **P<0.01

Table 5: PROCESS Model 1 moderation results

Predictor	b	SE	t	P	LLCI	ULCI
Outcome: Willingness to implement the policy (IW)						
Constant	2.50	0.33	7.57	<0.01	1.85	3.15
Operational policy powerlessness (OPP)	−0.20	0.06	−3.25	<0.01	−0.32	−0.08
Biospheric values (BV)	0.17	0.05	3.57	<0.01	0.07	0.26
OPP×BV	0.14	0.05	2.93	<0.01	0.05	0.24
Age	0.02	0.01	2.09	<0.05	0.00	0.04
Gender	0.14	0.14	1.00	>0.05	−0.14	0.42
Tenure	−0.01	0.02	−0.71	>0.05	−0.05	0.02
Job grade	−0.02	0.05	−0.44	>0.05	−0.12	0.08
R^2=0.14, F (7, 250)=5.98, P<0.01. Interaction: ΔR^2=0.03, F (1, 250)=8.57, P<0.01						
Conditional effects of OPP at values of BV						
−1 SD (1.91)	−0.38	0.09	−4.24	<0.01	−0.56	−0.20
Mean (3.16)	−0.20	0.06	−3.25	<0.01	−0.32	−0.08
+1 SD (4.41)	−0.02	0.08	−0.19	>0.05	−0.18	0.15
Johnson-Neyman point: BV=3.65; the effect of OPP is significant below this value (55.81% of the sample)						
Outcome: Behavioral resistance to the policy (BR)						
Constant	3.27	0.33	9.81	<0.01	2.61	3.92
Operational policy powerlessness (OPP)	0.30	0.06	4.96	<0.01	0.18	0.43
Biospheric values (BV)	−0.16	0.05	−3.35	<0.01	−0.25	−0.06
OPP×BV	−0.12	0.05	−2.33	<0.05	−0.21	−0.02
Age	−0.01	0.01	−0.69	>0.05	−0.02	0.01
Gender	−0.14	0.14	−0.99	>0.05	−0.42	0.14
Tenure	0.00	0.02	−0.24	>0.05	−0.04	0.03
Job grade	0.02	0.05	0.39	>0.05	−0.08	0.12
R^2=0.17, F (7, 250)=7.18, P<0.01. Interaction: ΔR^2=0.02, F (1, 250)=5.44, P<0.05						
Conditional effects of OPP at values of BV						
−1 SD (1.91)	0.45	0.09	4.99	<0.01	0.27	0.63
Mean (3.16)	0.30	0.06	4.96	<0.01	0.18	0.43
+1 SD (4.41)	0.16	0.08	1.87	>0.05	−0.01	0.33
Johnson-Neyman point: BV=4.37; the effect of OPP is significant below this value (77.91% of the sample).						

N=258. Unstandardized coefficients (b) from OLS regressions with composite scores, following PROCESS Model 1 (Hayes, 2022). OPP and BV were mean-centered before forming the product term. Conditional effects are shown at the mean of BV and one standard deviation above and below it, with BV values in the original metric in parentheses. LLCI and ULCI: Lower and upper limits of the 95% confidence interval. OPP: Operational policy powerlessness, BV: Biospheric values

was positively related to BR (b = 0.30, SE = 0.06, P < 0.01, 95% CI [0.18, 0.43]). Hypothesis 2 was supported.

Hypothesis 3a proposed that biospheric values weaken the negative relationship between operational policy powerlessness and IW. The interaction term was positive and significant (b = 0.14, SE = 0.05, P < 0.01, 95% CI [0.05, 0.24]) and explained an additional 2.94% of the variance in IW, $F(1, 250) = 8.57$, P < 0.01. The conditional effects showed that operational policy powerlessness was negatively related to IW when biospheric values were low (b = −0.38, SE = 0.09, P < 0.01) but not when they were high (b = −0.02, SE = 0.08, P > 0.05). The Johnson-Neyman analysis located the boundary of significance at a biospheric values score of 3.65 (Figure 2). Below this point, the negative effect was significant. This region covered 55.81% of the sample. Hypothesis 3a was supported.

Hypothesis 3b proposed that biospheric values weaken the positive relationship between operational policy powerlessness and BR. The interaction term was negative and significant (b = −0.12, SE = 0.05, P < 0.05, 95% CI [−0.21, −0.02]) and explained an additional 1.81% of the variance in BR, $F(1, 250) = 5.44$, P < 0.05. Operational policy powerlessness was strongly related to BR when biospheric values were low (b = 0.45, SE = 0.09, P < 0.01) and was not significant when they were high (b = 0.16, SE = 0.08, P > 0.05). The Johnson-Neyman boundary fell at a biospheric values score of 4.37 (Figure 3). The

Figure 2: Johnson-Neyman plot of the conditional effect of operational policy powerlessness on IW across biospheric values

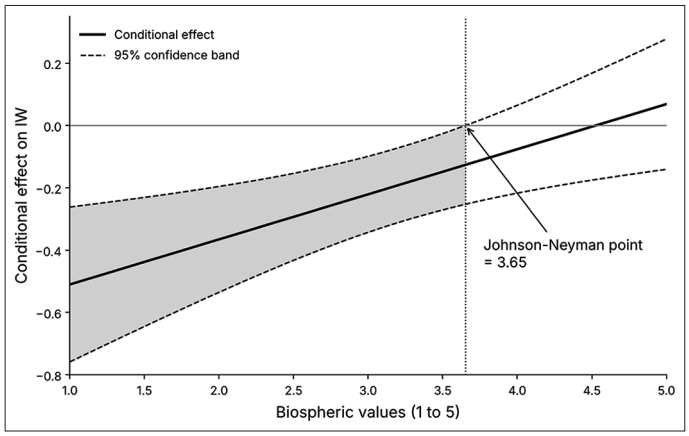
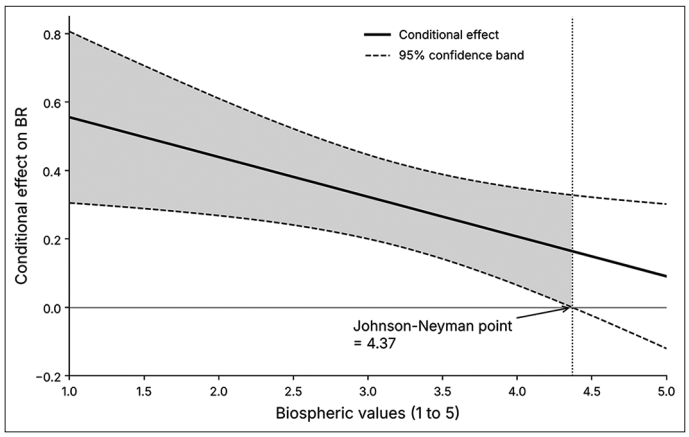


Figure 3: Johnson-Neyman plot of the conditional effect of operational policy powerlessness on BR across biospheric values



positive effect was significant below this point, a region covering 77.91% of the sample. Hypothesis 3b was supported.

5. DISCUSSION

This study examined how operational policy powerlessness relates to the willingness and resistance of forest field staff implementing Pakistan's largest afforestation program. Field staff who felt they lacked discretion were less willing to implement the TBTTP and more likely to resist it. Biospheric values buffered both effects. Among staff who strongly valued nature, powerlessness was no longer related to either response. The Johnson-Neyman results add an important nuance. The buffer against resistance applied only at the very top of the values distribution, so powerlessness raised resistance for most of the sample.

5.1. Theoretical Contributions

First, the study extends the policy alienation literature. Prior research has documented the consequences of alienation for healthcare professionals, teachers, and welfare workers in mostly Western settings (Tummers, 2011; Tummers et al., 2015; van Engen et al., 2016). Recent work has broadened its reach to the wellbeing of street-level bureaucrats in Punjab (Usman et al., 2021), coping among homecare workers (Lévesque and Benoit, 2025), and citizens' views of medical care policy (Xia et al., 2023). Our findings show that operational powerlessness matters for the implementers of an environmental program in a developing country. They also reinforce the view of Tummers (2011) that discretion during implementation is a key form of powerlessness for frontline staff. By modeling willingness and resistance together, the study shows that the same experience of powerlessness can weaken support and fuel opposition at once.

Second, the study adds to research on frontline implementation in environmental governance. Earlier work has examined how environmental agency staff respond to political control and politicized leadership (Bersch and Lotta, 2024; Story et al., 2023), and how political pressure affects civil servants (Lotta et al., 2024). Studies of Pakistan's afforestation programs have focused on vegetation outcomes and community participation (Abbas et al., 2023; Ullah, 2024; Maqbool, 2024). Our study connects these streams. It shows that the way implementers experience a program's procedures is related to their readiness to deliver it. This micro-level view complements audits and satellite evaluations that record shortfalls without explaining the behavior behind them (Auditor-General of Pakistan, n.d.).

Third, the study contributes to research on environmental values at work. This literature has mostly treated biospheric values and related green dispositions as direct predictors or amplifiers of pro-environmental behavior (de Groot and Steg, 2008; Stern et al., 1999; Anser et al., 2021; Usman et al., 2023; Wagner et al., 2025). We show that biospheric values also act as a boundary condition. They shape how employees react when the conditions of their work become restrictive. This finding is consistent with the value-belief-norm view that values support a self-generated obligation to act (Stern, 2000). The obligation appears strong enough to sustain commitment to an environmental policy that otherwise feels constraining.

5.2. Policy Implications

The findings offer three implications for the design and governance of afforestation policy. First, policymakers should build operational discretion into program design. Field staff need room to adapt species choice, site preparation, and community engagement to local conditions. Rigid targets and uniform procedures may reduce the very effort the program needs. Second, provincial forest departments can use biospheric values in recruitment, training, and team assignment. Training that links daily tasks to environmental outcomes may strengthen these values and help sustain implementation under tight rules (Usman et al., 2023). Human resource practices oriented to the common good can also foster ethical conduct among employees (Pham et al., 2023), which supports faithful implementation. Divisional forest officers matter too. Leaders who serve and empower their staff shape how employees share or withhold effort and knowledge (Lu et al., 2024; Usman et al., 2024). Third, monitoring systems should track implementer reactions alongside plantation targets. Short pulse surveys of field staff could flag rising resistance before it shows up as low survival rates. These steps may help the successor phases of the program avoid the gaps recorded in Punjab (Auditor-General of Pakistan, n.d.).

6. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

Afforestation policy is delivered by people, not by plans. This study shows that forest field staff who lack discretion over the TBTTP are less willing to implement it and more inclined to resist it. Staff who strongly value nature are largely protected from these effects. Sustainability policy can therefore protect its own delivery in two ways: by giving implementers room to use judgment and by investing in the values that keep them committed when that room is limited.

This study has limitations. First, the cross-sectional, single-source design does not allow causal inference. Procedural and statistical checks suggest that common method variance is not a serious concern, but time-lagged or multi-source designs would strengthen future tests. Supervisor ratings of implementation behavior would be a useful addition. Second, the sample came from one province and one program. Future studies could compare provinces or other sustainability policies, such as plastic bans or clean air measures. Third, we did not examine antecedents of operational powerlessness. Supervisory leadership is a likely source, given evidence that servant and inclusive leadership shape employees' empowerment and discretionary behavior (Lu et al., 2024; Usman et al., 2024). Fourth, we focused on operational powerlessness. Strategic and tactical powerlessness, as well as policy meaninglessness, may operate differently and deserve joint testing (Tummers, 2012). Finally, BR was self-reported and may be understated. Indirect measures or peer reports could provide a fuller picture of resistance.

REFERENCES

Abbas, S., Qamer, F.M., Ali, H., Usman, M., Ahmad, A., Salman, A., Akhter, A.M. (2023), Monitoring of large-scale forest restoration: Evidence of vegetation recovery and reversing chronic ecosystem degradation in the mountain region of Pakistan. Ecological Informatics, 77, 102277.

Anser, M.K., Shafique, S., Usman, M., Akhtar, N., Ali, M. (2021), Spiritual leadership and organizational citizenship behavior for the environment: An intervening and interactional analysis. Journal of Environmental Planning and Management, 64(8), 1496-1514.

Auditor-General of Pakistan. (n.d.), Special Audit Report on the Accounts of "Ten Billion Tree Tsunami Programme (Phase-1) Up-Scaling of Green Pakistan Programme (Revised)" and "Revival of Wildlife Resources in Punjab, Green Pakistan Programme (1st Revised)", Audit year 2022-23. Pakistan: Forest, Wildlife and Fisheries Department, Government of Punjab.

Bersch, K., Lotta, G. (2024), Political control and bureaucratic resistance: The case of environmental agencies in Brazil. Latin American Politics and Society, 66(1), 27-50.

Cerna-Aragon, D., García, L. (2025), Making the eyes of the state: Algorithmic alienation and mundane creativity in Peruvian street-level bureaucrats. Policy Sciences, 58(1), 69-86.

Cohen, N., Lotta, G., Alcadipani, R., Lazebnik, T. (2024), Trust and street-level bureaucrats' willingness to risk their lives for others: The case of Brazilian law enforcement. The American Review of Public Administration, 54(2), 119-134.

De Groot, J.I.M., Steg, L. (2007), Value orientations and environmental beliefs in five countries: Validity of an instrument to measure egoistic, altruistic and biospheric value orientations. Journal of Cross-Cultural Psychology, 38(3), 318-332.

De Groot, J.I.M., Steg, L. (2008), Value orientations to explain beliefs related to environmental significant behavior: How to measure egoistic, altruistic, and biospheric value orientations. Environment and Behavior, 40(3), 330-354.

Fornell, C., Larcker, D.F. (1981), Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39-50.

Hayes, A.F. (2022), Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach. 3rd ed. New York: Guilford Press.

Hayes, A.F., Matthes, J. (2009), Computational procedures for probing interactions in OLS and logistic regression: SPSS and SAS implementations. Behavior Research Methods, 41(3), 924-936.

Henseler, J., Ringle, C.M., Sarstedt, M. (2015), A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115-135.

Lévesque, G.V., Benoit, M. (2025), Coping strategies and policy alienation under centralization and performance management: Evidence from a survey of Quebec homecare workers. Administration Society, 57(3), 368-398.

Lindell, M.K., Whitney, D.J. (2001), Accounting for common method variance in cross-sectional research designs. Journal of Applied Psychology, 86(1), 114-121.

Lipsky, M. (2010), Street-Level Bureaucracy: Dilemmas of the Individual in Public Services (30th Anniversary Expanded ed.). New York: Russell Sage Foundation.

Lotta, G., Nieto-Morales, F., Peeters, R. (2023), "Nobody wants to be a dead hero": Coping with precarity at the frontlines of the Brazilian and Mexican pandemic response. Public Administration and Development, 43(3), 232-244.

Lotta, G., Tavares, G.M., Story, J. (2024), Political attacks and the undermining of the bureaucracy: The impact on civil servants' well-being. Governance, 37(2), 619-641.

Lu, J., Guo, Z., Usman, M., Qu, J., Fareed, Z. (2024), Conquering precarious work through inclusive leadership: Important roles of structural empowerment and leader political skill. Human Relations, 77(10), 1413-1435.

Maqbool, N. (2024), Challenges and Opportunities of the Ten Billion Tree Tsunami Project (TBTTPP): A Case Study of the ex-FATA (Pakistan) (Knowledge Brief No. 2024:111). Pakistan: Pakistan Institute of Development Economics.

Metselaar, E.E. (1997), Assessing the Willingness to Change: Construction and Validation of the DINAMO [Doctoral dissertation] Free University of Amsterdam.

Miller, B.K., Simmering, M.J. (2023), Attitude toward the color blue: An ideal marker variable. Organizational Research Methods, 26(3), 409-440.

Miller, B.K., Simmering, M.J., Ragland, E. (2024), Effective and adaptable: Four studies on the shortened attitude toward the color blue marker variable scale. Behavior Research Methods, 56(7), 7985-8008.

Ministry of Climate Change. (2021), National Climate Change Policy (updated). Islamabad: Government of Pakistan.

Oreg, S. (2006), Personality, context, and resistance to organizational change. European Journal of Work and Organizational Psychology, 15(1), 73-101.

Pham, N.T., Jabbour, C.J.C., Pereira, V., Usman, M., Ali, M., Vo-Thanh, T. (2023), Common good human resource management, ethical employee behaviors, and organizational citizenship behaviors

toward the individual. Human Resource Management Journal, 33(4), 977-1000.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y., Podsakoff, N.P. (2003), Common method biases in behavioral research: A critical review of the literature and recommended remedies. Journal of Applied Psychology, 88(5), 879-903.

Podsakoff, P.M., MacKenzie, S.B., Podsakoff, N.P. (2012), Sources of method bias in social science research and recommendations on how to control it. Annual Review of Psychology, 63, 539-569.

Stern, P.C. (2000), New environmental theories: Toward a coherent theory of environmentally significant behavior. Journal of Social Issues, 56(3), 407-424.

Stern, P.C., Dietz, T., Abel, T., Guagnano, G.A., Kalof, L. (1999), A value-belief-norm theory of support for social movements: The case of environmentalism. Human Ecology Review, 6(2), 81-97.

Story, J., Lotta, G., Tavares, G.M. (2023), (Mis)led by an outsider: Abusive supervision, disengagement, and silence in politicized bureaucracies. Journal of Public Administration Research and Theory, 33, 549-562.

Tucker, D., Hendy, J., Chrysanthaki, T. (2022), How does policy alienation develop? Exploring street-level bureaucrats' agency in policy context shift in UK tele health care. Human Relations, 75(9), 1679-1706.

Tummers, L. (2011), Explaining the willingness of public professionals to implement new policies: A policy alienation framework. International Review of Administrative Sciences, 77(3), 555-581.

Tummers, L. (2012), Policy alienation of public professionals: The construct and its measurement. Public Administration Review, 72(4), 516-525.

Tummers, L., Bekkers, V., Steijn, B. (2009), Policy alienation of public professionals: Application in a new public management context. Public Management Review, 11(5), 685-706.

Tummers, L., Bekkers, V., Van Thiel, S., Steijn, B. (2015), The effects of work alienation and policy alienation on behavior of public employees. Administration Society, 47(5), 596-617.

Tummers, L., Steijn, B., Bekkers, V. (2012), Explaining the willingness of public professionals to implement public policies: Content, context, and personality characteristics. Public Administration, 90(3), 716-736.

Ullah, A. (2024), Forest landscape restoration and its impact on social cohesion, ecosystems, and rural livelihoods: Lessons learned from Pakistan. Regional Environmental Change, 24, 26.

Usman, M., Ali, M., Mughal, F., Agyemang-Mintah, P. (2021), Policy alienation and street-level bureaucrats' psychological wellbeing: The mediating role of alternative commitment. Journal of Public Administration Research and Theory, 31(2), 278-294.

Usman, M., Ali, M., Soetan, G.T., Ayoko, O.B., Berber, A. (2024), Seeing others' side to serve: Understanding how and when servant leadership impacts employee knowledge-hiding behaviors. Human Relations, 77(1), 3-28.

Usman, M., Rofcanin, Y., Ali, M., Ogbonnaya, C., Babalola, M.T. (2023), Toward a more sustainable environment: Understanding why and when green training promotes employees' eco-friendly behaviors outside of work. Human Resource Management, 62(3), 355-371.

van Engen, N., Tummers, L., Bekkers, V., Steijn, B. (2016), Bringing history in: Policy accumulation and general policy alienation. Public Management Review, 18(7), 1085-1106.

Wagner, B., Van Der Werff, E., Steg, L. (2025), Values at work: Understanding how individual and perceived organisational values relate to employees' motivation and pro-environmental behaviour at work. Journal of Environmental Psychology, 103, 102547.

Williams, L.J., Hartman, N., Cavazotte, F. (2010), Method variance and marker variables: A review and comprehensive CFA marker technique. Organizational Research Methods, 13(3), 477-514.

Xia, C., Xu, J., Ding, X. (2023), Alienation from medical care policy, medical care avoidance, and the role of sex and risk perception. BMC Psychiatry, 23, 594.