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## 2 **Embedded Cooperation and the Durability of Regional Cooperation in South Asia.**

### 3 **1. Explaining Durable Cooperation Beyond Institutional Authority**

4 Regional cooperation is widely understood to depend on institutional arrangements that  
5 stabilise expectations among participating states. A substantial body of scholarship,  
6 prominently Koremenos (2005), argues that cooperation becomes durable when it is  
7 embedded within frameworks that reduce uncertainty, structure interaction, and constrain  
8 opportunistic behaviour. The underlying premise is that without credible assurances  
9 regarding the continuity of commitments, cooperation remains fragile, whereas institutional  
10 mechanisms enable it to persist over time (Abbott & Snidal, 2000). From this perspective,  
11 durability is not simply a function of shared interests, but of institutional conditions that  
12 render those interests reliable across time.

13 This expectation is particularly salient in regional contexts, where cooperation often unfolds  
14 in the absence of centralised authority. Without delegated institutions capable of enforcing  
15 agreements or mediating disputes, coordination must rely on the continued alignment of  
16 national preferences (Börzel&Risse, 2010). Where such alignment is uncertain—as is often  
17 the case in politically fragmented regions—cooperative arrangements are expected to remain  
18 contingent rather than stable. The absence of institutional depth, in this view, constrains both  
19 the scope and durability of cooperation. This is especially evident in regions characterised by  
20 “weak regionalism,” where institutional authority remains limited and coordination is uneven  
21 (Acharya, 2009).

22 South Asia has frequently been interpreted through this lens. Regional cooperation has  
23 developed within an environment characterised by strong sovereignty sensitivities, limited  
24 institutional delegation, and recurrent political tensions among states. Although formal  
25 regional frameworks exist, their capacity to shape behaviour remains constrained, and  
26 coordination often proceeds through intergovernmental or bilateral channels rather than  
27 through authoritative regional structures (Dash, 2008). Under these conditions, the factors  
28 typically associated with durable cooperation—credible commitment, institutional  
29 enforcement, and coordinated governance—are only weakly present. The expectation that  
30 follows is straightforward: cooperation should be difficult to sustain, particularly in domains  
31 requiring long-term coordination and sustained investment.

32 This expectation becomes more pronounced in infrastructure-intensive sectors such as  
33 electricity. Cross-border electricity cooperation involves large-scale capital investments,  
34 extended project timelines, and continuous technical coordination across national systems.  
35 Transmission infrastructure must be developed, generation capacity aligned with external  
36 demand, and regulatory arrangements sustained over time. These features introduce long-  
37 term dependencies that, in the absence of stabilising institutional frameworks, would be  
38 expected to increase vulnerability rather than resilience (Victor, 2011). If cooperation  
39 depends on ongoing political alignment, sectors requiring long-term commitments should be  
40 especially sensitive to disruption.

41 Yet this expectation sits uneasily with the empirical trajectory of cross-border electricity  
42 cooperation in South Asia. Over the past decade, electricity trade linking India with Bhutan,  
43 Bangladesh, and Nepal has expanded in both scale and continuity despite the persistence of  
44 weak regional institutional authority (CREC, 2023). Rather than remaining contingent,  
45 cooperation in this sector has stabilised and, in some respects, deepened under conditions that  
46 would ordinarily undermine long-term coordination.

47 This divergence raises a central question: how does cross-border electricity cooperation  
48 become durable in the absence of strong institutional frameworks? More specifically, how  
49 can cooperation persist across political variability, shifting domestic priorities, and limited  
50 regional governance capacity?

51 Rather than treating this as an anomaly, the pattern suggests a need to reconsider how  
52 durability is understood. If institutional authority is limited but cooperation persists, then the  
53 mechanisms sustaining it may not lie primarily in institutional design. The task, therefore, is  
54 not simply to explain why cooperation emerges, but to examine how it becomes stabilised  
55 under conditions where institutional support remains weak.

56 Existing approaches offer important insights into the dynamics of regional cooperation, yet  
57 they provide only a partial account of the pattern observed in South Asia. Institutional  
58 explanations emphasise the role of formal arrangements in stabilising expectations and  
59 enforcing commitments. Where such mechanisms are weak, cooperation is expected to  
60 depend on the continued alignment of state preferences. Durability, in this view, remains  
61 contingent, persisting only so long as political conditions remain favourable. Applied to the  
62 South Asian context, this would suggest that cross-border electricity cooperation should be  
63 sensitive to domestic political change, shifts in leadership, and fluctuations in interstate

64 relations. The observed continuity in this sector therefore raises a question about the limits of  
65 this assumption.

66 A common response is to shift attention from institutions to incentives. From this perspective,  
67 cooperation endures because it generates tangible benefits for participating states. Electricity  
68 trade allows for more efficient utilisation of generation capacity, reduces supply constraints,  
69 and enables complementarities across national systems. These gains are substantial and help  
70 explain why cooperative arrangements emerge. However, they are less effective in  
71 accounting for their stability. If cooperation were sustained primarily through shifting cost–  
72 benefit calculations, greater variation would be expected in response to changes in domestic  
73 priorities or external conditions. The persistence of electricity trade across periods of political  
74 uncertainty suggests that its continuity cannot be reduced to fluctuating incentives alone  
75 (Fearon, 1998).

76 A related line of argument highlights asymmetry within the regional system. India's position  
77 as the dominant actor and central node in electricity exchange provides structural advantages  
78 that may support cooperation. Smaller states rely on access to Indian markets, infrastructure,  
79 and investment, generating relationships of dependence (Pandey & Pitdaya, 2024). While this  
80 perspective captures an important feature of the regional configuration, it does not fully  
81 resolve the question of durability. Dependence does not inherently produce stability; it can  
82 generate vulnerability as much as continuity (Hirschman, 1945), particularly when political  
83 relations are strained (Kuszevska & Nitza-Makowska, 2021). Moreover, electricity exchange  
84 in South Asia does not operate as a one-directional system of dependence. Importing  
85 countries rely on continued supply, while exporting countries depend on sustained access to  
86 external markets (UNDP, 2000). Asymmetry therefore redistributes risk rather than  
87 eliminating it, leaving open the question of why these relationships remain stable over time.

88 Another explanation focuses on the organisational form of cooperation, suggesting that  
89 bilateral arrangements compensate for weak regional institutions. Much of the progress in  
90 electricity cooperation in South Asia has occurred through intergovernmental agreements  
91 between specific pairs of states rather than through comprehensive regional frameworks.  
92 While this may reduce coordination challenges, bilateralism does not in itself ensure  
93 durability. Agreements between two states remain subject to the same political uncertainties  
94 that affect broader regional cooperation. Without mechanisms that stabilise expectations  
95 across time, bilateral arrangements remain vulnerable to disruption.

96 Taken together, these perspectives capture important aspects of cooperation but do not fully  
97 account for its persistence under conditions of institutional weakness and political variability.  
98 Institutional explanations emphasise authority, incentive-based accounts emphasise  
99 efficiency, and power-based perspectives emphasise structural relationships. Each contributes  
100 to understanding how cooperation emerges, yet none adequately explains how it becomes  
101 stabilised in contexts where these conditions remain incomplete or uncertain.

102 This suggests that the issue lies not simply in the absence of cooperation, but in how its  
103 durability is conceptualised. The South Asian electricity case indicates that cooperation can  
104 persist in ways that appear structured rather than contingent. Rather than being sustained  
105 solely through ongoing political alignment, cooperative arrangements may be organised in  
106 ways that reduce the likelihood and increase the cost of disruption (Granovetter, 1985). The  
107 analytical task, therefore, is to examine how such stability is produced.

108 A useful starting point is to shift attention from institutions as the primary source of  
109 durability to the organisation of cooperation itself. Cooperation does not operate in  
110 abstraction; it is enacted through systems—material, contractual, and administrative—that  
111 shape how interactions are reproduced over time. Where these systems remain thin or easily  
112 reversible, cooperation may remain fragile. Where they become integrated into the  
113 functioning of participating actors, the conditions under which cooperation operates begin to  
114 change.

115 Building on this shift in perspective, this paper approaches durability not as an outcome  
116 secured primarily through institutional authority, but as a condition that may emerge through  
117 the organisation of cooperation itself. The central argument is that cooperation can become  
118 stabilised when it is embedded within systems that structure how it operates over time. Rather  
119 than remaining dependent on continuous political alignment, cooperative arrangements may  
120 acquire stability as they become integrated into material infrastructures, economic  
121 relationships, and administrative practices that sustain interaction on a regular basis  
122 (Granovetter, 1985).

123 In the case of cross-border electricity cooperation, this structuring process is closely tied to  
124 the development of interconnected systems. Electricity exchange depends on transmission  
125 networks that physically link national grids, connecting generation in one country to  
126 consumption in another (Bhattacharya, 2015). These systems require substantial investment,  
127 coordinated technical standards, and long-term planning. Once established, they are not easily

128 dismantled without incurring significant economic and operational costs. Infrastructure  
129 therefore does not simply facilitate cooperation; it anchors it within material systems whose  
130 continued functioning depends on sustained exchange.

131 These material linkages are complemented by contractual arrangements that extend  
132 commitments across time. Cross-border electricity projects are typically governed by  
133 agreements that define pricing structures, supply obligations, and financing arrangements  
134 over long durations (CERC, 2019). Such contracts underpin the viability of infrastructure  
135 investments and stabilise expectations regarding future exchange. Altering or terminating  
136 these arrangements entails financial and legal costs that extend beyond immediate political  
137 considerations, reinforcing continuity.

138 At the same time, the integration of electricity trade into domestic energy systems generates  
139 patterns of interdependence that reshape the incentives of participating actors. Export-  
140 oriented systems rely on revenue streams tied to cross-border exchange, while importing  
141 systems incorporate external supply into their planning frameworks (UNDP, 2000). Although  
142 these relationships are not symmetrical, they create mutual exposure to disruption, making  
143 continued cooperation preferable to its interruption (WTO, 2024).

144 Alongside these material and economic dimensions, cooperation is sustained through the  
145 routine practices of administrative and technical coordination. Cross-border electricity  
146 exchange requires continuous interaction among grid operators, regulatory authorities, and  
147 system managers responsible for balancing supply and demand. Over time, these interactions  
148 become regularised through procedures and protocols that govern day-to-day operations  
149 (March & Olsen, 1989)). What begins as negotiated coordination is gradually incorporated  
150 into the normal functioning of interconnected systems.

151 These elements suggest that durability may arise through the cumulative effects of  
152 embedding. Infrastructure links systems physically, contractual arrangements extend  
153 commitments temporally, interdependence aligns incentives, and administrative practices  
154 reproduce cooperation through routine operation. These processes do not eliminate political  
155 uncertainty, but they reshape the conditions under which cooperation operates by increasing  
156 the costs of disruption and reducing reliance on continuous political alignment.

157 The argument advanced here is therefore modest but consequential. It does not claim that  
158 institutions are irrelevant, nor that incentives and power do not matter. Rather, it suggests that  
159 under conditions where institutional authority is limited, cooperation may stabilise through

160 the systems within which it becomes embedded. In such cases, durability is not imposed  
161 externally, but generated through the organisation of interaction itself.

162 If this argument holds, cross-border electricity cooperation in South Asia should exhibit  
163 specific empirical patterns: the development of infrastructure that integrates national systems,  
164 the presence of long-term contractual arrangements that stabilise exchange, the emergence of  
165 interdependent trade relationships, and the routinisation of administrative coordination. The  
166 following section examines these dynamics in order to assess how cooperation has become  
167 stabilised in this context.

## 168 **2. Embedded Cooperation and the Material Foundations of Durability**

169 The durability of cross-border electricity cooperation in South Asia becomes analytically  
170 visible when electricity exchange is understood not as episodic interaction but as system-level  
171 integration. If the central claim of this paper is that cooperation stabilises through embedding  
172 rather than institutional authority, the empirical task is not simply to document the expansion  
173 of electricity trade, but to demonstrate how it becomes structurally anchored within the  
174 material and operational organisation of national electricity systems. The evolution of cross-  
175 border electricity cooperation within the Bangladesh–Bhutan–India–Nepal (BBIN) system  
176 between 2013 and 2022 provides a clear illustration of this transformation.

177 During this period, cross-border electricity exchange expanded in scale, regularity, and  
178 functional significance. Transmission interconnections increased, trade volumes grew, and  
179 hydropower development was aligned with export markets despite weak institutionalisation  
180 and persistent political tensions. Under conventional expectations, such conditions would  
181 constrain long-term cooperation. Yet electricity exchange has become progressively  
182 stabilised. The question, therefore, is not whether cooperation exists, but how it acquires  
183 durability under these constraints.

184 This section demonstrates that durability emerges through the embedding of cooperation  
185 within four interrelated structures: infrastructure systems, contractual and financial  
186 arrangements, interdependent trade relationships, and administrative routines. These  
187 mechanisms accumulate over time, transforming electricity exchange from a discretionary  
188 political arrangement into an operational requirement of system stability. The first and most  
189 immediate manifestation of this process is infrastructural integration.

190 Electricity trade depends on physical interconnection. Once transmission links are  
191 established, national grids are integrated into a shared operational space where flows are  
192 governed by system requirements rather than discrete political decisions. The expansion of  
193 cross-border infrastructure in South Asia since 2013 illustrates this transformation.

194 The commissioning of the Baharampur–Bheramara HVDC interconnection between India  
195 and Bangladesh in 2013 marked a critical step. Initially designed for 500 MW and later  
196 expanded to 1,000 MW, it created a dedicated corridor for sustained electricity exchange  
197 (World Bank, 2019). Its significance lies not only in capacity expansion but in the integration  
198 of imports into Bangladesh’s domestic supply system, where cross-border electricity now  
199 functions as a stable component rather than a marginal supplement.

200 This integration is reinforced by additional links such as the Tripura–Comilla interconnection  
201 (~160 MW). Together, these corridors enable Bangladesh to import over 1,100 MW of  
202 electricity from India, embedding cross-border trade within national supply structures. At this  
203 scale, disruption would affect system stability rather than simply reduce trade volumes.

204

205 **Table 1. Major Cross-Border Transmission Infrastructure in the BBIN System**

Project	Countries	Commissioned	Technology	Capacity
Baharampur–Bheramara	India–Bangladesh	2013	HVDC	500 MW
Baharampur–Bheramara (Expansion)	India–Bangladesh	2017	HVDC	1000 MW
Tripura–Comilla	India–Bangladesh	2016	132 kV AC	~160 MW
Dhalkebar–Muzaffarpur	India–Nepal	2016	400 kV AC	1000 MW

206 *Source: World Bank (2019); Asian Development Bank (2020); Powerline (2022).*

207

208 The analytical significance of these developments lies in the scale and functional integration  
209 of electricity flows. As cross-border exchange becomes embedded within national supply  
210 systems, the consequences of disruption extend beyond trade loss to system instability.  
211 Electricity imports are no longer discretionary; they are incorporated into the operational

212 logic of national grids. Infrastructure thus restructures cooperation by increasing the material  
213 costs of discontinuity.

214 A similar process is evident along the India–Nepal border. The Dhalkebar–Muzaffarpur 400  
215 kV transmission line established the first high-capacity link between the two countries,  
216 enabling transfers of up to 1,000 MW (World Bank, 2019). Subsequent expansions have  
217 increased total transfer capacity to approximately 1,400–1,600 MW, enabling both imports  
218 and exports of electricity. Cross-border exchange is thereby integrated into system balancing,  
219 particularly given seasonal variations in hydropower generation.

220 The most deeply embedded form of infrastructural integration is observed in the India–  
221 Bhutan relationship. Hydropower projects such as Chukha, Tala, and Mangdechhu are  
222 directly connected to the Indian grid through dedicated transmission infrastructure (ADB,  
223 2020). These projects are structurally organised around export, linking generation to external  
224 markets. Their viability depends on sustained electricity flows, embedding cooperation at the  
225 level of production.

226 Across the BBIN system, these developments produce an interconnected network in which  
227 electricity flows continuously rather than intermittently. This transformation shifts  
228 cooperation from a negotiable outcome to a structural condition of system operation. High  
229 capital investment and long asset lifetimes further reinforce this dynamic, as disruption would  
230 generate significant economic losses. Infrastructure therefore stabilises cooperation not  
231 through enforcement, but through material constraint ((Flyvbjerg, 2014)).

232 The stabilising effects of infrastructural integration, however, do not operate in isolation.  
233 Physical interconnection anchors exchange, but its continuation depends on arrangements  
234 that stabilise expectations across time. Infrastructure alone cannot sustain cooperation unless  
235 electricity flows remain predictable and financially viable. It is at this point that contractual  
236 and financial structures assume a central role, embedding cooperation not only in space but in  
237 time.

238 The stabilising effects of infrastructural integration, however, do not operate in isolation.  
239 While physical interconnection anchors electricity exchange within material systems, its  
240 continued operation depends on arrangements that stabilise expectations across time.  
241 Infrastructure alone cannot sustain cooperation unless electricity flows remain predictable  
242 and investment recovery remains viable. Contractual and financial structures therefore embed  
243 cooperation within long-term commitments, extending it beyond short-term political cycles.

244 Electricity infrastructure projects in South Asia—particularly hydropower and transmission  
 245 investments—are characterised by high upfront costs and long amortisation periods. Their  
 246 viability depends on sustained utilisation over decades. As a result, cross-border electricity  
 247 cooperation is organised through long-term agreements that define supply commitments,  
 248 pricing structures, and financing arrangements. These agreements do not simply regulate  
 249 exchange; they underpin the functioning of the infrastructure itself (Williamson, 1985).

250 The organisation of hydropower development in Bhutan provides the clearest illustration.  
 251 Projects such as Chukha (336 MW), Tala (1020 MW), and Mangdechhu (720 MW) are  
 252 structured through long-term export arrangements linking generation directly to the Indian  
 253 market (World Bank, 2019). These agreements enable cost recovery over extended time  
 254 horizons and ensure predictable revenue streams. Approximately 70 percent of Bhutan’s  
 255 electricity generation is exported to India, making cross-border trade central to national  
 256 revenue and fiscal stability (IEEFA, 2022).

257 The analytical significance of these arrangements lies in their temporal structure. Because  
 258 infrastructure financing and national revenue depend on sustained exports, cooperation  
 259 becomes embedded within long-term economic commitments. Disrupting electricity trade  
 260 would therefore affect not only supply but also investment recovery and fiscal stability.  
 261 Durability, in this context, is produced through the costs of termination rather than external  
 262 enforcement.

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264 **Table 2. Long-Term Agreements Supporting Cross-Border Electricity Cooperation**

Project / Agreement	Countries	Capacity	Nature of Arrangement
Chukha Hydropower Project	Bhutan–India	336 MW	Long-term export agreement
Tala Hydropower Project	Bhutan–India	1020 MW	Long-term export agreement
Mangdechhu Hydropower Project	Bhutan–India	720 MW	Export-oriented agreement
India–Bangladesh Supply Agreements	India–Bangladesh	~1160 MW	Long-term supply contracts

Project / Agreement	Countries	Capacity	Nature of Arrangement
India–Nepal Trade Framework	India–Nepal	Variable	Structured trade arrangements

265 *Sources: IEEFA (2022); World Bank (2019); regional electricity authority reports.*

266

267 A comparable pattern is evident in electricity trade between India and Bangladesh. Long-term  
 268 supply agreements between the Bangladesh Power Development Board and Indian suppliers  
 269 define electricity volumes and pricing, allowing imports to be incorporated into national  
 270 planning. As demand has expanded, cross-border electricity—exceeding 1,100 MW—has  
 271 shifted from supplementary to structurally necessary (Powerline, 2022).

272 These agreements stabilise expectations across political cycles. Electricity imports at this  
 273 scale cannot be sustained through short-term arrangements; they require contractual  
 274 predictability that embeds cooperation within long-term planning horizons.

275 Financial structures reinforce this temporal embedding. Hydropower and transmission  
 276 projects are financed through arrangements that assume sustained electricity trade, with  
 277 repayment schedules tied to export revenues. This links financial viability directly to  
 278 continued cooperation. Disrupting electricity exchange would therefore affect not only  
 279 energy supply but also debt servicing and capital recovery, increasing the costs of  
 280 discontinuity.

281 Regulatory frameworks extend these commitments into governance structures. India’s Cross-  
 282 Border Electricity Trade Guidelines (2016, revised 2018) establish procedures governing  
 283 imports and exports, integrating electricity trade into domestic regulatory systems. By  
 284 codifying participation rules and operational conditions, these frameworks reduce uncertainty  
 285 and normalise cross-border exchange as a routine component of market operation.

286 Taken together, contractual arrangements, financing structures, and regulatory frameworks  
 287 embed cooperation within a temporal and financial architecture that stabilises expectations  
 288 across time. Infrastructure requires continuous operation, contracts secure flows over  
 289 extended periods, and financial arrangements tie economic performance to sustained  
 290 exchange. These elements operate cumulatively to increase the costs associated with  
 291 renegotiation or termination.

292 In contrast to institutional explanations that locate durability in formal authority, the evidence  
293 here indicates that stability can emerge from the structuring of cooperation itself. Contracts  
294 and financial arrangements do not enforce cooperation hierarchically; they embed it within  
295 systems of obligation that are difficult to unwind. Durability, therefore, is generated through  
296 temporal commitment rather than institutional control.

297 If infrastructural integration anchors cooperation within material systems and contractual  
298 arrangements extend it across time, sustained electricity exchange generates a further layer of  
299 stability by linking the economic and operational interests of participating states. Electricity  
300 trade produces continuous flows that reshape national energy systems, creating  
301 interdependent relationships in which disruption imposes costs across multiple actors  
302 simultaneously (Koehane& Nye, 1977).

303 Within the BBIN system, India functions as the central hub of regional electricity exchange,  
304 importing hydropower from Bhutan while exporting electricity to Bangladesh and Nepal. By  
305 2021–2022, India imported approximately 7.6 TWh from Bhutan while exporting around 7.3  
306 TWh to Bangladesh and 1.9 TWh to Nepal (CERC, 2023). These flows are analytically  
307 significant not only for their scale but because they indicate a level of integration at which  
308 electricity trade becomes a structural component of national energy systems rather than an  
309 external supplement.

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311 **Table 3. Structure of Cross-Border Electricity Trade in the BBIN System (Approx.**  
312 **2021–2022)**

Flow Direction	Volume (TWh)	Functional Role
Bhutan → India	~7.6 TWh	Hydropower export (revenue generation)
India → Bangladesh	~7.3 TWh	Supply augmentation
India → Nepal	~1.9 TWh	Seasonal balancing / supply support

313 *Sources: CERC (2023); World Bank (2019); Powerline (2022).*

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315 The structure of these flows produces differentiated but interconnected forms of dependence.  
316 Bhutan represents export-oriented dependence, with electricity revenues forming a major  
317 component of national income. Bangladesh reflects import dependence, where cross-border  
318 electricity is incorporated into baseline planning to meet rising demand. Nepal occupies an  
319 intermediate position, importing electricity during shortages while exporting surplus  
320 hydropower during peak production cycles.

321 Despite these asymmetries, interdependence generates mutual constraint (Krasner, 1976).  
322 Export-dependent economies risk revenue loss, import-dependent systems face supply  
323 shortages, and intermediate systems depend on continued market access for balancing  
324 production and consumption. These costs are distributed across the system, making  
325 disengagement collectively unattractive. Cooperation persists not because dependence is  
326 equal, but because it is structured in a way that raises the costs of withdrawal for all  
327 participants.

328 This mechanism operates independently of strong institutional authority. Stability emerges  
329 from the structure of exchange itself: sustained flows align incentives and reduce the  
330 feasibility of disruption. Durability, therefore, is generated through system-level  
331 interdependence rather than institutional enforcement.

332 A further layer of stability is produced through administrative routinisation, which embeds  
333 cooperation within the everyday functioning of electricity governance systems. Cross-border  
334 electricity exchange requires continuous coordination among grid operators, regulatory  
335 authorities, and trading entities responsible for managing electricity flows. Over time, these  
336 interactions become institutionalised within technical and administrative procedures that  
337 operate largely independent of high-level political negotiation (Lipsky, 1980).

338 In South Asia, cross-border electricity trade is increasingly governed through such  
339 frameworks. Transactions are integrated into domestic regulatory systems and managed  
340 through procedures governing scheduling, transmission allocation, and system balancing.  
341 India's Cross-Border Electricity Trade Guidelines formalise these processes, embedding  
342 electricity exchange within routine governance structures.

343 At the operational level, cooperation is reproduced through daily technical coordination  
344 rather than periodic political agreement. Electricity flows are continuously scheduled and  
345 balanced, making cross-border exchange a normal component of grid management. As a

346 result, cooperation becomes less visible as a political decision and more embedded as an  
347 operational necessity.

348 The cumulative effect of these mechanisms becomes most evident under conditions of  
349 political volatility. The period between 2013 and 2022 includes political transitions in Nepal,  
350 electoral contestation in Bangladesh, and stagnation of regional institutional coordination.  
351 Under conventional expectations, such conditions would undermine long-term cooperation.

352 Yet cross-border electricity exchange continued to expand. Infrastructure projects progressed,  
353 contractual arrangements remained in force, and trade flows persisted across political cycles.  
354 Electricity imports and exports were maintained despite domestic political shifts, indicating  
355 that cooperation had become embedded within systems that function independently of short-  
356 term political change.

357 At the regional level, this persistence contrasts with the limited effectiveness of multilateral  
358 institutional frameworks. While broader regional cooperation has remained constrained,  
359 electricity exchange within the BBIN system has continued to deepen, suggesting that  
360 durability in this sector does not depend on strong regional institutional authority.

361 Taken together, the evidence points to a consistent empirical pattern. Cross-border electricity  
362 cooperation in South Asia has demonstrated durability despite weak institutionalisation and  
363 political variability. Infrastructure continues to operate, contractual commitments remain in  
364 force, trade flows persist, and administrative systems sustain coordination across borders.  
365 These mechanisms operate cumulatively, embedding cooperation within material, economic,  
366 and organisational structures that raise the costs of disruption.

367 The empirical analysis therefore supports the central argument of this paper. The persistence  
368 of cross-border electricity cooperation cannot be explained solely by institutional authority or  
369 favourable political conditions. Instead, cooperation has become durable because it is  
370 embedded within infrastructure systems, long-term contractual and financial arrangements,  
371 interdependent trade relationships, and routinised administrative practices that collectively  
372 stabilise electricity exchange over time.

373 In this configuration, durability emerges not as an outcome imposed by institutional design,  
374 but as a property generated through the organisation of cooperation itself. Electricity  
375 exchange is sustained not because it is externally enforced, but because it is internally  
376 structured in ways that make disruption increasingly difficult and costly. The South Asian

377 case thus demonstrates how cooperation can persist under conditions of weak regional  
378 authority when it becomes embedded within the systems that sustain it.

### 379 **3. Implications and Conclusion: Rethinking Durability Beyond Institutions**

380 This paper began with a central puzzle: how does cross-border electricity cooperation persist  
381 in a regional context characterised by weak institutional authority, limited delegation, and  
382 persistent political tensions? Conventional approaches to international and regional  
383 cooperation suggest that durability depends on institutional mechanisms capable of stabilising  
384 expectations, enforcing commitments, and reducing uncertainty over time. From this  
385 perspective, South Asia—marked by shallow institutionalisation and fragmented  
386 governance—would appear to offer unfavourable conditions for sustained cooperation,  
387 particularly in infrastructure-intensive sectors requiring long-term coordination.

388 The empirical analysis presented in this paper, however, demonstrates a different pattern.  
389 Cross-border electricity cooperation within the Bangladesh–Bhutan–India–Nepal (BBIN)  
390 system has expanded and stabilised since the early 2010s despite the absence of strong  
391 regional institutional authority. This persistence is not incidental or episodic. Rather, it  
392 reflects the embedding of cooperation within infrastructure systems, long-term contractual  
393 and financial arrangements, interdependent trade relationships, and routinised administrative  
394 practices. These mechanisms operate cumulatively to transform electricity exchange from a  
395 contingent political arrangement into an operational requirement of system stability.

396 The central contribution of this paper is therefore conceptual. It shows that durability in  
397 regional cooperation cannot be understood solely as a function of institutional authority.  
398 While existing scholarship has emphasised the role of formal institutions in stabilising  
399 cooperation, the South Asian electricity case demonstrates that stability can emerge through  
400 the organisation of cooperation itself. Infrastructure creates material constraints that are  
401 costly to reverse; contracts extend commitments across time; interdependence aligns  
402 incentives among participating actors; and administrative routines reproduce cooperation  
403 through everyday operational practices. Together, these processes generate a form of  
404 embedded durability that operates independently of strong institutional enforcement.

405 This argument carries important implications for how cooperation is conceptualised in  
406 contexts of institutional constraint. First, it suggests that durability and institutionalisation  
407 should be analytically distinguished rather than treated as inherently linked outcomes. In the

408 South Asian case, electricity cooperation has become operationally stable without producing  
409 a corresponding deepening of regional governance structures. Cooperation is embedded, but  
410 authority remains decentralised. This challenges the assumption that stable cooperation  
411 necessarily implies institutional consolidation.

412 Second, the findings shift analytical attention from the presence or absence of institutions to  
413 the organisational form of cooperation. Rather than asking whether institutions exist to  
414 support cooperation, the more relevant question becomes how cooperative arrangements are  
415 structured, reproduced, and integrated into the systems in which they operate. Durability, in  
416 this sense, is generated not only through formal rules, but through the material, economic,  
417 and administrative configurations that sustain interaction over time.

418 At the same time, the argument advanced here is subject to important scope conditions. The  
419 mechanisms identified are most likely to operate in sectors characterised by large-scale  
420 infrastructure investment, long-term contractual commitments, and continuous technical  
421 coordination. Electricity systems possess these characteristics, making them particularly  
422 conducive to forms of embedded stability. In sectors more directly dependent on ongoing  
423 political negotiation—such as security cooperation, migration governance, or trade  
424 liberalisation—cooperation may remain more sensitive to shifts in political preferences and  
425 institutional capacity. The argument should therefore be understood not as a general theory of  
426 cooperation, but as identifying a specific pathway through which durability can emerge under  
427 particular sectoral conditions.

428 The broader relevance of these findings extends beyond South Asia. Many regions in the  
429 Global South are characterised by weak institutionalisation, political fragmentation, and  
430 asymmetrical power relations. In such contexts, cooperation may not follow the trajectory  
431 associated with highly institutionalised regions. Instead, it may develop through sector-  
432 specific arrangements that become embedded within national systems and bilateral  
433 relationships. Recognising this pattern expands the analytical vocabulary of regional  
434 cooperation by accounting for forms of stability that emerge under constraint.

435 Finally, the trajectory of such systems remains open. While embedding stabilises cooperation  
436 by increasing the costs of disruption, it does not necessarily generate pressures for deeper  
437 institutionalisation. It therefore remains an open question whether such configurations  
438 represent transitional arrangements that may evolve toward more formalised governance

439 structures, or whether they constitute relatively stable equilibria in which cooperation persists  
440 without institutional consolidation.

441 In conclusion, the South Asian electricity case demonstrates that durable cooperation can  
442 emerge in the absence of strong regional authority when it becomes embedded within the  
443 systems that sustain it. By shifting attention from institutional design to the organisation of  
444 cooperation, this paper provides a more nuanced account of how stability can be generated  
445 under conditions of constraint, and contributes to a broader rethinking of the relationship  
446 between institutions, systems, and the durability of regional cooperation.

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448 REFERENCES

- 449 Abbott, K. W., & Snidal, D. (2000). Hard and soft law in international governance.  
450 *International Organization*, 54(3), 421–456.
- 451 Acharya, A. (2009). *Whose ideas matter? Agency and power in Asian regionalism*. Cornell  
452 University Press.
- 453 Asian Development Bank. (2018). *Cross-border power trading in South Asia: A techno-*  
454 *economic rationale*. Asian Development Bank.
- 455 Bangladesh Power Division. (2024). *Cross-border electricity import framework and capacity*  
456 *overview*. Government of Bangladesh.
- 457 Central Electricity Regulatory Commission. (2023). *Annual market monitoring report 2022–*  
458 *2023*. Government of India. <https://cercind.gov.in>
- 459 Central Electricity Regulatory Commission. (2023). *Annual market monitoring report 2022–*  
460 *2023: Chapter III – Cross-border electricity trade*. Government of India.
- 461 CUTS International. (2018). *Cross-border electricity trade in the BBIN subregion*. CUTS  
462 International.
- 463 Dash, K. C. (2008). *Regionalism in South Asia: Negotiating cooperation, institutional*  
464 *structures*. Routledge.
- 465 Fearon, J. D. (1998). Bargaining, enforcement, and international cooperation. *International*  
466 *Organization*, 52(2), 269–305.
- 467 Flyvbjerg, B. (2014). What you should know about megaprojects and why: An overview.  
468 *Project Management Journal*, 45(2), 6–19.
- 469 Granovetter, M. (1985). Economic action and social structure: The problem of  
470 embeddedness. *American Journal of Sociology*, 91(3), 481–510.
- 471 Hirschman, A. O. (1945). *National power and the structure of foreign trade*. University of  
472 California Press.
- 473 Institute for Energy Economics and Financial Analysis. (2019). *Bhutan’s hydropower sector:*  
474 *Opportunities and risks in the regional electricity market*.
- 475 IRADe. (2018). *Gains from multilateral electricity trade among BBIN countries*. Integrated  
476 Research and Action for Development.
- 477 Keohane, R. O. (1984). *After hegemony: Cooperation and discord in the world political*  
478 *economy*. Princeton University Press.
- 479 Keohane, R. O., & Nye, J. S. (1977). *Power and interdependence: World politics in*  
480 *transition*. Little, Brown.
- 481 Koremenos, B. (2005). Contracting around international uncertainty. *American Political*  
482 *Science Review*, 99(4), 549–565.

483 Krasner, S. D. (1976). State power and the structure of international trade. *World Politics*,  
484 28(3), 317–347.

485 Kuszewska, A., & Nitza-Makowska, A. (2021). Multifaceted aspects of economic corridors in  
486 the context of regional security: The China–Pakistan Economic Corridor as a stabilising and  
487 destabilising factor. *Journal of Asian Security and International Affairs*, 8(2), 218–248.

488 Lipsky, M. (1980). *Street-level bureaucracy: Dilemmas of the individual in public services*.  
489 Russell Sage Foundation.

490 March, J. G., & Olsen, J. P. (1989). *Rediscovering institutions: The organizational basis of*  
491 *politics*. Free Press.

492 Ministry of Power, Government of India. (2017). *Guidelines on cross-border trade of*  
493 *electricity*.

494 Ministry of Power, Government of India. (2018). *Guidelines for import/export (cross-border)*  
495 *of electricity*.

496 National Renewable Energy Laboratory. (2019). *South Asia regional energy integration:*  
497 *Opportunities for cross-border electricity trade*.

498 Pandey, L., & Patodiya, P. (2024). Hydropower-economic relationship between Nepal and  
499 India. *South Asian Journal of Research & Innovation*.

500 Powerline. (2022). *Power connections: Cross-border electricity trade in South Asia*.  
501 Powerline Magazine.

502 Renewable Energy World. (2013). *India and Bangladesh open 500 MW power transmission*  
503 *link*.

504 Solingen, E. (2008). The genesis, design, and effects of regional institutions: Lessons from  
505 East Asia and the Middle East. *International Studies Quarterly*, 52(2), 261–294.

506 United Nations Development Programme. (2000). *World energy assessment: Energy and the*  
507 *challenge of sustainability*.

508 Victor, D. G. (2011). *Global warming gridlock: Creating more effective strategies for*  
509 *protecting the planet*. Cambridge University Press.

510 Williamson, O. E. (1985). *The economic institutions of capitalism: Firms, markets, relational*  
511 *contracting*. Free Press.

512 World Bank. (2017). *South Asia regional electricity trade: Project overview and*  
513 *infrastructure development*.