

When the Red Light Speaks: Sociotechnical Controversies, Spatial Justice, and Temporal Democracy at the Samsat - Kiaracandong Intersection, Bandung

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Abstract

The Samsat - Kiaracandong (Kircon) intersection in Bandung, Indonesia, reportedly features the longest red-light waiting cycle in the country, reaching peak durations of over 720 seconds. While technocratic discourse frames this signal as a neutral tool for traffic optimization, this article argues that it functions as a contested sociotechnical node where questions of spatial and temporal justice are continuously negotiated. Drawing on Actor-Network Theory (ANT), particularly Latour's concepts of "matters of concern" and the tracing of associations, the study analyzes four layers of sociotechnical controversy: group formation, the distributed nature of action, the agency of non-human objects, and the construction of truth. Using qualitative secondary data including digital media, institutional documents, and social media discourse the analysis reveals that the intersection generates multiple, often conflicting social groups (e.g., victimized motorists, rule-breakers, informal economy actors, marginalized pedestrians), each constituted through its specific relationship to the signal's temporal rhythm. Action at the intersection is distributed across a heterogeneous network of human and non-human actants, including traffic officers, algorithmic control systems, and CCTV infrastructure. The study further demonstrates how technocratic truth claims are contested by citizen counter-discourses rooted in lived experience. The findings contribute to urban ANT scholarship, mobility justice studies, and infrastructure governance in the Global South by showing that even mundane technical artifacts are sites of vernacular democracy, where competing claims to time and space are enacted daily. The article concludes by calling for more inclusive, democratic approaches to urban infrastructure governance that acknowledge the multiplicity of legitimate interests at stake.

INTRODUCTION

Traffic infrastructure is rarely understood as a site of political contestation. In dominant urban planning discourses, a traffic signal is an instrument of technical rationality: a device calibrated to optimize throughput, minimize congestion, and distribute vehicular flow in accordance with data-driven algorithms. Yet, as scholars working at the intersection of Science and Technology Studies (STS) and urban geography have long argued, technical objects are never merely technical. They are always already social, political, and moral artifacts inscribed with particular visions of urban order and generating distributive consequences that map onto existing inequalities of class, mobility, and access.



Figure 1. Traffic Light Scene at Samsat Kiaracondong, Bandung – Researcher's Survey, 2025

Source: Researcher's field survey, 2025

This article takes seriously the political life of a single traffic light. Located at the Samsat-Kiaracondong intersection (hereafter "*Kircon*") in Bandung, West Java, Indonesia, this particular signal has gained cultural notoriety as the red light with the longest waiting cycle in the country with peak-hour durations reportedly reaching 720 seconds, or twelve minutes. What in technocratic terms is rationalized as an optimized traffic management solution is, in the lived experience of the city's inhabitants, a source of frustration, improvisation, informal economic opportunity, and contentious public discourse. It is, in short, a controversy.

This article mobilizes the conceptual apparatus of Actor-Network Theory (ANT), particularly as elaborated by Bruno Latour in *Reassembling the Social* (2005) and *Politics of Nature* (2004), to analyze this controversy systematically. ANT offers a distinctive approach to the study of sociotechnical phenomena by insisting on the symmetrical treatment of human and non-human actors, the tracing of associations rather than the invocation of explanatory structures, and the replacement of "matters of fact" with "matters of concern". Rather than asking what the traffic light "does" in isolation, ANT asks how it becomes an actant within a heterogeneous network and what configurations of power, justice, and knowledge that network enacts.



Figure 2. Schematic layout of the Samsat Kiaracondong intersection and traffic light system
– Researcher's Survey, 2025

Source: Researcher's illustration based on field observation, 2025

The concept of spatial justice, developed most influentially by Edward Soja (2010) following Lefebvre's (1991) work on the production of space, asks who has the right to urban space and how access to that space is distributed. To this, we add the less-theorized but equally pressing concept of temporal justice the equitable distribution of time as a social resource in urban environments (Cresswell, 2010). At *Kircon*, these two dimensions of justice are simultaneously at stake: who occupies the intersection, for how long, under what conditions, and with what legitimacy?

Methodologically, the study relies on qualitative analysis of secondary sources including digital news articles, social media content from platforms such as TikTok, Instagram, and X (formerly Twitter), official statements from the Bandung City Transportation Office (Dinas Perhubungan), as well as the author's own long-term ethnographic familiarity with the site spanning over fifteen years of daily transit through the intersection. This approach is consistent with ANT's methodological emphasis on "tracing associations" across diverse registers of evidence Latour, (2005) and with the growing use of digital ethnography in urban studies (Hjorth & Pink, 2014).

Building upon Latour's, (2005) four-layered controversy framework, this study aims to systematically identify and analyze the sociotechnical controversies at the *Kircon* intersection focusing on group formations, distributed action, object agency, and truth claims while theorizing spatial and temporal justice as co-constituted dimensions of urban infrastructure governance. Methodologically, it demonstrates how secondary digital data (social media, news reports, official statements) can trace controversies without primary fieldwork, offering a replicable framework for Global South contexts. Theoretically, it advances ANT-urban justice integration by operationalizing "temporal justice" as a complement to spatial justice, showing that waiting time is a political resource reflecting urban inequalities. Practically, the findings challenge technocratic traffic management in Bandung, advocate for multi-stakeholder

deliberation including informal workers and pedestrians, and provide a cautionary model for inclusive infrastructure governance across the Global South.

RESEARCH METHOD

This study adopted a qualitative, interpretive research design consistent with ANT's methodological imperatives. In *Reassembling the Social*, Latour argues for what he calls "following the actors" attending to the concrete associations, translations, and controversies through which networks are assembled, rather than imposing pre-given analytical categories. Accordingly, this study proceeds by identifying and tracing the controversies that surround the *Kircon* intersection, attending to the multiplicity of actants involved and the ways in which they constitute each other through their interactions.

Primary data sources include: (1) digital news reports from Kompas.com and other Indonesian news outlets covering the *Kircon* intersection between 2018 and 2025; (2) social media content from TikTok, Instagram, and X, including user-generated videos, comments, and viral posts about the intersection; (3) official statements from the Bandung City Transportation Office (Dinas Perhubungan Kota Bandung) regarding signal timing and traffic management; and (4) the author's long-term ethnographic familiarity with the site, developed over fifteen years of daily transit through the intersection.

Data were analyzed through the lens of Latour's four ANT-derived analytical categories: controversies over group formation, controversies over the nature of action, controversies over the agency of objects, and controversies over the production of truth. This framework, derived from *Reassembling the Social*, provides a systematic structure for analyzing how sociotechnical networks are assembled, contested, and stabilized. The use of Callon's (1986) concept of "translation" the process by which actors enroll others into their networks by redefining their interests provides additional analytical traction for understanding the dynamics of the *Kircon* network.

Methodological limitations should be acknowledged. The reliance on secondary and digital sources means that the perspectives of some actors particularly the most marginalized, such as informal workers with limited digital presence may be underrepresented. Future research should supplement this analysis with primary ethnographic fieldwork and participatory methods to ensure fuller representation of all actants in the network.

RESULTS AND DISCUSSION

In ANT's analytical framework, social groups are not pre-given entities that enter into relationships; they are continuously produced and reproduced through ongoing associational work. As Latour (2005) insists, there are "no groups, only group formations. "The *Kircon* intersection is a powerful illustration of this principle: a single technical artifact generates, maintains, and contests a multiplicity of overlapping social collectives, each defined by its particular relationship to the signal's temporal rhythm.

Motorists as "Victims of Time"

The most numerically dominant and discursively prominent group constituted at the *Kircon* intersection is that of motorists who identify themselves as victims of the signal's excessive duration. This collective identity is not a reflection of a pre-existing social group but an emergent formation produced through shared experience of the signal's temporality. The

affective register of this group formation expressed through phrases such as "*lampu merah perenggut masa muda*" (the red light that steals one's youth) or viral TikTok content documenting waiting times sufficient for multiple songs constitutes what Latour (2005) calls a "spokesperson" relation: individual expressions that claim to speak for a broader collective.

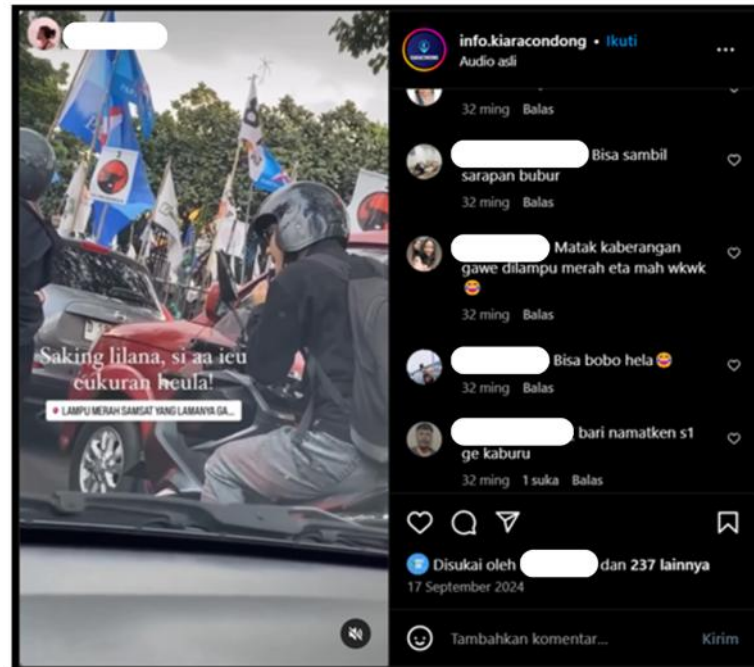


Figure 4. A motorist shaving their mustache and beard while waiting for the green light.

Source: (<https://www.instagram.com/info.kiaracondong/reel/DAAfDGRskeC/>)

The performativity of these expressions is significant. When a motorist posts a complaint on X or Instagram, they are not merely reporting a subjective experience; they are enrolling others into a shared interpretation of the situation, stabilizing a particular definition of the problem, and thereby contributing to the ongoing production of the "victim" group. This is a textbook example of what Callon (1986) calls "problematization" the process by which an actor defines a situation in terms that make its centrality to others' interests apparent.

Rule-Breakers as Counter-Formation

A second group emerges through acts of resistance: motorists who choose to turn against traffic, make U-turns in prohibited zones, or seek alternative routes to avoid the waiting queue. ANT explicitly cautions against reading such "deviant" behavior as mere rule-violation. Rather, the formation of a rule-breaking group is itself an associational achievement the product of a particular configuration of frustration, infrastructure design, enforcement absence, and social contagion (when the first driver breaks ranks, others follow). These actors do not simply violate the system; they actively redefine the spatial boundaries of legitimate mobility, enacting what Latour (2005) calls "group remaking."

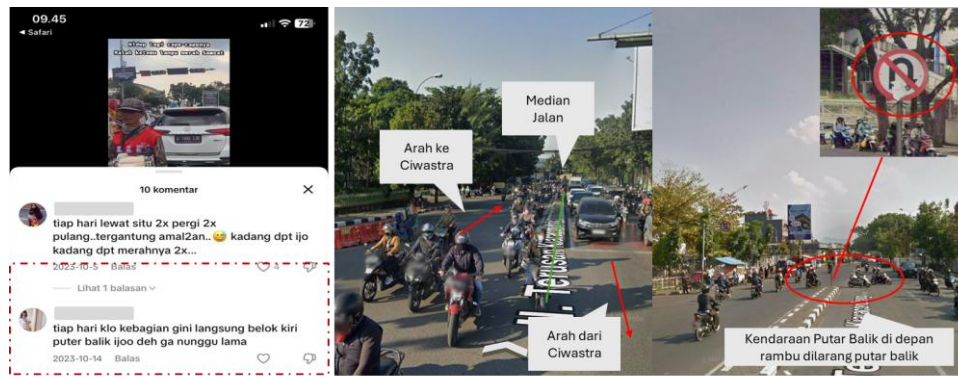


Figure 5. A formation of motorists opting for an alternative.

Source: <https://vt.tiktok.com/ZShLVhEKO>

Time-Appreciators: The Unexpected Beneficiary Group

A third, counterintuitive group formation is constituted by those who find value in the signal's extended duration. Couples who use the waiting period for private conversation, commuters who use the time for prayer, drivers who manage administrative tasks on mobile phones: these actors appropriate the temporal gap created by the signal for purposes entirely unintended by its designers. The existence of this group demonstrates that the meaning of a technical artifact is never singular or stable; it is produced through the multiplicity of uses, interpretations, and appropriations through which actors engage with it (Tedeschi, 2024; Padawangi, 2019; Setiowati et al., 2022).

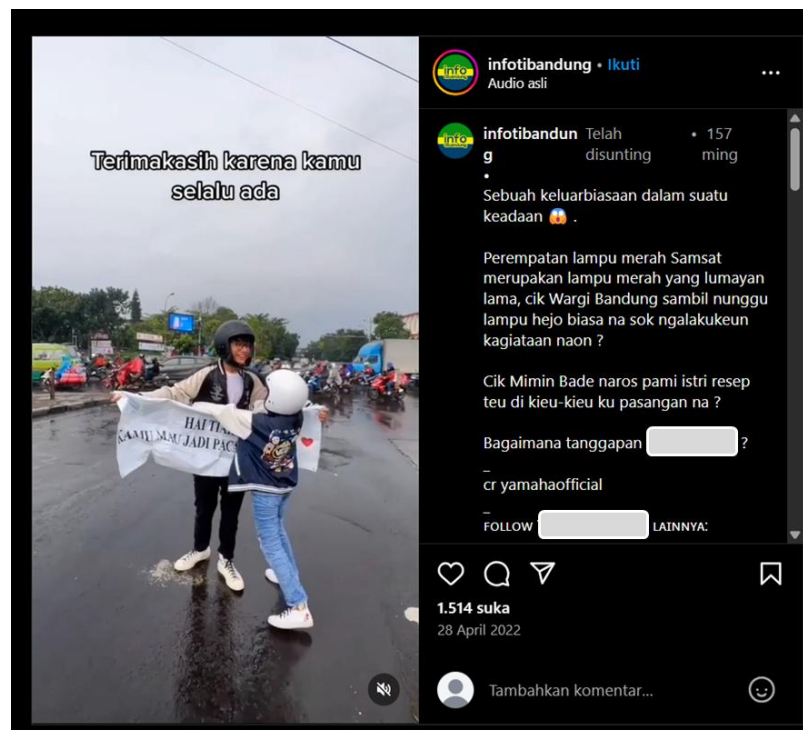


Figure 6. An individual taking the opportunity to confess their feelings to a crush at the Samsat red light.

Source: <https://www.instagram.com/reel/Cc4oTYmF6gd/?igsh=ZDNkcXpzNhlwNm92>.

Informal Economy Actors: Buskers, Vendors, and Angkot Drivers

Perhaps the most analytically significant group formations at *Kircon* are those constituted by informal economy actors whose livelihoods are directly dependent on the signal's extended duration. Street buskers (*pengamen*) who can perform five to seven songs per red-light cycle, street vendors (*pedagang asongan*) who exploit the captive audience of stationary vehicles, and *angkot* (public minibus) drivers who use the intersection as an informal pickup point: all constitute groups defined by their productive appropriation of what the dominant discourse constructs as "wasted" time.

This finding resonates with Malasan's (2019) analysis of street vendors in Bandung as active social infrastructure builders. It also confirms Simone's (2004) broader argument that, in Global South cities, "people as infrastructure" construct collective resources through their everyday improvisations within and around formal urban systems. The informal economy actors at *Kircon* do not simply tolerate the signal's extended duration; they depend on it, and their livelihoods would be disrupted by any reduction of the cycle.



Figure 7. Buskers, hawkers, mobile coffee vendors, and angkots at the Samsat/ *Kircon* red light.

Source: Researcher's documentation, 2025

Government as Technocratic Actor

The Bandung City Transportation Office (Dinas Perhubungan) constitutes itself as a technocratic actor that speaks in the language of data, efficiency, and system optimization. The statement by the Head of Road Traffic Section, Andri Fernando Sijabat that the total cycle at the *Kircon* intersection is only 396.5 seconds, based on ATCS data, and that the formula for calculating signal timing involves service level and degree of saturation is a classic example of

what Latour (2004) calls a "matter of fact" claim: a statement that presents itself as reflecting objective reality rather than as a particular, contested construction of it.

Pedestrians as Marginalized Beneficiaries

An important finding of this analysis is the emergence of pedestrians as a group with ambivalent positioning within the *Kircon* network. In the dominant discourse, pedestrians are absent the intersection is discussed almost exclusively in terms of vehicular mobility. Yet pedestrians at *Kircon* are significant beneficiaries of the signal's extended duration, which affords them adequate time to cross safely. Their relative invisibility in public discourse reflects broader patterns of marginalization in Indonesian urban mobility planning, where pedestrian infrastructure is systematically undervalued relative to vehicular infrastructure (Moser & Tzoulas, 2020).

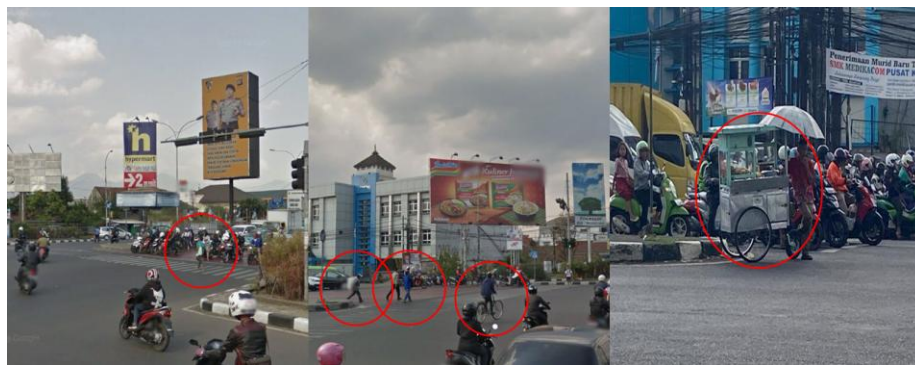


Figure 8. Pedestrians crossing and street vendors waiting to cross the street.

Source: Researcher's field survey, 2025

Controversies Over the Distribution of Action

A second dimension of ANT's analytical framework concerns controversies over the nature and distribution of action. In orthodox social theory, action is attributed to individual subjects who act on the basis of intentions, motivations, or structural determinations. ANT displaces this figure of the intentional subject by arguing that action is always distributed across networks of human and non-human entities: "action is dislocated". No single actor is the "author" of any act; every action is the product of multiple enrollments, translations, and mediations.

At the *Kircon* intersection, this insight transforms our understanding of even the most apparently simple acts. A motorist who "chooses" to wait at the red light does not simply exercise individual will: she is enrolled by the traffic signal, by traffic law, by the social norm of queue discipline, by the physical impossibility of proceeding given the density of vehicles ahead, and by the anticipation of enforcement consequences. Her waiting is the product of this network, not of her individual decision.



Figure 9. Motorcyclists taking shelter due to what they perceive as a “long” waiting time
Source: Researcher’s documentation, 2025

Similarly, the busker who "decides" to perform at the intersection does not act unilaterally. Her action is made possible by the extended signal duration (which constitutes her performance window), by the captive audience of stationary motorists (who constitute her potential market), by the social norm of informal economic activity in Indonesian urban public space, and by the absence of enforcement action against her presence. Her agency is distributed across this network of entities.



Figure 10. An individual making use of the long red-light duration at the Samsat/Kiaracondong intersection
Source: Researcher’s field survey, 2025

The traffic officer who intervenes to direct traffic manually when the automated system fails to respond adequately to actual conditions does not simply exercise authority. She negotiates between the system's algorithmic logic and the concrete situation on the ground, translating between different registers of knowledge and different temporal rhythms. Her action is a form of what Star and Griesemer (1989) call "boundary work" negotiating across the boundary between the formal system and the informal reality it was designed to manage.



Figure 11. Traffic police officer managing traffic
 Source: Researcher's documentation, 2025.

The distributed nature of action at *Kircon* has significant implications for questions of moral and political responsibility. If the rule-breaking motorist does not act alone if his "violation" is co-produced by an infrastructure that fails to accommodate his needs, by a timing system that exceeds reasonable waiting tolerances, and by the social contagion of collective rule-breaking then the attribution of individual responsibility becomes problematic. This is not a counsel for irresponsibility, but an invitation to a more sophisticated understanding of the social conditions that generate particular behaviors.

Controversies Over the Agency of Non-Human Objects

According to the Actor-Network Theory (ANT) framework, non-human objects are not merely passive tools for human use but possess the capacity to act and influence their environment in unforeseen ways. For example, the traffic signal at *Kircon* functions not only as a regulator of traffic flow but also as an actant shaping the urban environment. Temporally, it sets the rhythm of the intersection; spatially, it defines authorized and unauthorized positions for vehicles, pedestrians, and informal economic actors; economically, its timing enables temporary informal economic activity; and socially, it facilitates interactions between actors who would not otherwise meet, such as motorists, street vendors, and actors from both formal and informal economic sectors.



Figure 12. A long red-light duration transforms the traffic waiting space into an arena of socio-economic interaction among motorists, online motorcycle taxi drivers, digital platforms, and the urban road system.
 Source: Researcher's field survey, 2025

The concept of "inscription" (Akrich, 1992) is useful here: technical artifacts embody scripts for action they anticipate and prescribe particular behaviors from their users. The traffic signal at *Kircon* inscribes a script of compliance: stop, wait, proceed when green. Yet this script is constantly contested, rewritten, and appropriated by the actors who engage with it. The rule-breaking motorist rewrites the script by refusing to wait; the busker rewrites it by using the waiting zone as a performance space; the angkot driver rewrites it by treating the intersection as an informal pickup zone. These rewritings are themselves acts of political agency assertions of competing claims to urban space and time.



Figure 13.

Source: Researcher's documentation/Screenshot from social media, 2025

The *Kircon* traffic light functions as a socio-economic interaction space, where road users, vendors, and congestion converge. Its ATCS (Adaptive Traffic Control System) acts as a non-human agent, shaping urban mobility by prioritizing vehicle throughput while subordinating pedestrians and informal economy actors. According to Latour's "black box" concept, the technical decisions of the signal appear objective and natural, obscuring the political choices, weighting of user needs, and institutional constraints behind the system. Controversies reopen this black box, revealing the contingent and political character of technical decisions.

Controversies Over the Construction of Truth

The fourth dimension of ANT focuses on controversies over knowledge production and stabilization. Latour distinguishes between "matters of fact" and "matters of concern," emphasizing that validity arises from networks of support rather than independent reality. At the *Kircon* intersection, official claims by the Dinas Perhubungan about traffic signal timing are challenged by citizen counter-discourses highlighting subjective experiences of excessive waiting. These competing claims reflect disputes over values, priorities, and governance, not merely factual accuracy. Citizen reports and social media content act as counter-knowledge, enrolling others in their perspective and creating quasi-standards. This controversy illustrates the politics of expertise, where technical authority and lived experience contest who defines urban problems and solutions.

Spatial and Temporal Democracy: Towards a Latourian Framework

The four layers of controversy analyzed in the preceding sections over group formation, the distribution of action, the agency of objects, and the construction of truth converge on a central question: who has the right to urban space and time, and through what processes are those rights distributed and contested? This is, at its core, a question of spatial and temporal democracy.

Spatial justice, as theorized by Soja (2010) following Lefebvre (1991), concerns the equitable distribution of spatial resources, opportunities, and burdens across urban populations. The *Kircon* intersection is a site in which spatial justice is continuously at stake. The allocation of lane space, the positioning of pedestrian crossings, the toleration of informal economic activity in public space: all of these are outcomes of ongoing political negotiations, inscribed into the physical environment through technical and administrative decisions that appear neutral but are in fact deeply contested.

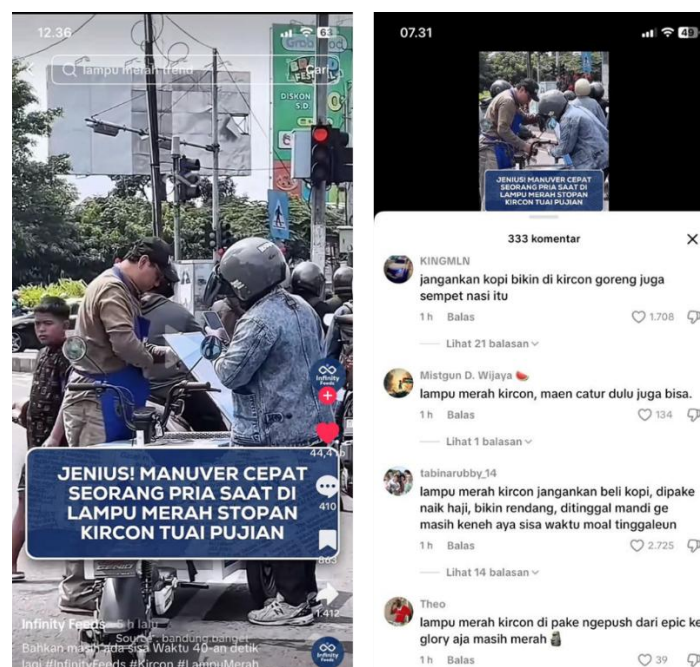


Figure 14. Social media users' responses to content featuring a motorcyclist briefly purchasing iced coffee milk

Source: Screenshot from Instagram comment section, 2025.

Temporal justice a concept that deserves more systematic theoretical development concerns the equitable distribution of time as a social resource. Time is not simply a neutral dimension of social life; it is a resource that is differentially distributed and appropriated in relation to social position, mobility capacity, and access to institutional power. The distribution of waiting time at the *Kircon* intersection is a direct expression of temporal politics: some actors wait longer than others, some have the capacity to circumvent the wait, and some convert the waiting time into productive resources.

A key finding of this analysis is that spatial and temporal justice at *Kircon* is not simply undermined by the signal's technical parameters; they are actively contested and partially realized through the practices of the intersection's diverse users. The busker who converts the

signal's temporal gap into a performance opportunity, the pedestrian who uses the extended crossing time to move safely, the *angkot* driver who uses the queue as an informal pickup zone: all enact partial forms of spatial and temporal claim-making that constitute, in aggregate, a form of vernacular democracy a democracy of practice rather than of formal institutional participation.



Figure 15. An individual measuring the duration of the red light at the Samsat–Kiaracandong (*Kircon*) intersection

Source: Researcher's field survey, 2025

Latour's concept of "cosmopolitics" (drawing on Stengers, 2005) is useful for theorizing this vernacular democracy. Cosmopolitics refers to the challenge of constructing collective existence in a world populated by radically heterogeneous entities human and non-human, formal and informal, authorized and insurgent. The *Kircon* intersection is a cosmopolitical site: a space in which the challenge of collective existence is posed acutely and negotiated continuously.

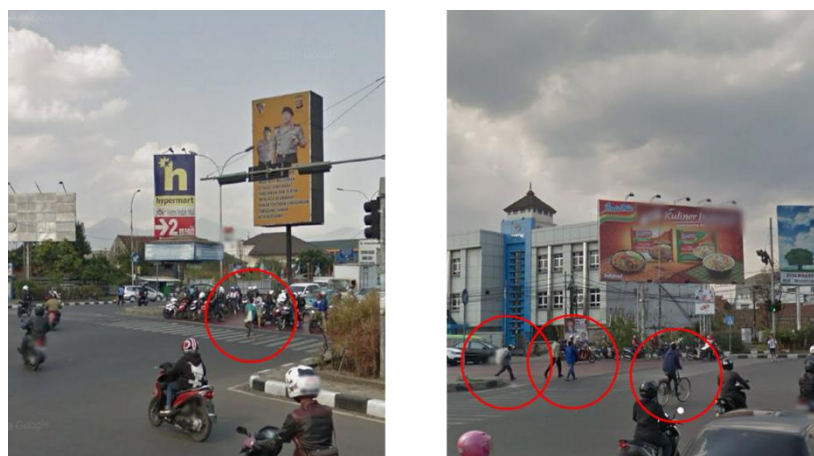


Figure 16. Pedestrians utilizing the extended red-light interval at the Samsat–Kiaracandong intersection to cross the street

Source: Researcher's documentation, 2025

From a governance perspective, the analysis suggests that the technocratic approach to traffic signal management which treats the intersection as a technical problem to be solved through data-driven optimization is inadequate to the complexity of the situation. A more democratic approach would acknowledge the plurality of interests, values, and forms of knowledge at stake, and would create institutional mechanisms for their genuine representation in decision-making processes. This is consistent with Latour's (2004) proposal, in *Politics of Nature*, for a "parliament of things" that includes non-human entities as legitimate participants in collective life.

This analysis of the *Kircon* intersection offers several contributions to existing scholarship. First, it demonstrates the analytical power of ANT for studying mundane urban infrastructure as a site of political contestation. The traffic signal, typically treated as a background feature of urban life, is revealed as a complex sociotechnical artifact that generates, sustains, and contests a multiplicity of social relations (Duarte & Firmino, 2017; Rutherford, 2019). This supports Farías and Bender's (2010) argument that ANT can significantly enrich urban studies by attending to the heterogeneous, non-human dimensions of city life.

Second, the analysis contributes to the growing literature on mobility justice and transport equity in the Global South (Lucas, 2019; Oviedo & Nieto, 2020). By demonstrating how a single traffic signal systematically distributes time and space in ways that privilege some actors while marginalizing others, and by revealing the informal economies of appropriation through which marginalized actors claim partial justice, the article advances a nuanced understanding of urban inequality that goes beyond aggregate measures of service provision.

Third, the analysis develops the concept of temporal justice as a complement to spatial justice in urban ANT scholarship. While the spatial dimensions of urban inequality have received substantial theoretical attention, the temporal dimensions the unequal distribution of waiting, movement, and rhythmic disruption have been less systematically theorized. The *Kircon* case suggests that temporal justice is a critical dimension of urban democratic life that deserves dedicated conceptual and empirical attention (Jon, 2026; Miller, 2021).

Fourth, the article demonstrates the epistemological value of Latour's (2004) concept of "matters of concern" for urban governance analysis. By revealing how technocratic truth claims about the *Kircon* intersection suppress the multiplicity of legitimate perspectives, the analysis opens space for a more inclusive, democratic approach to urban infrastructure governance. This is particularly relevant in Indonesian urban contexts, where technocratic planning traditions have often excluded the voices of informal economy actors and other marginalized urban populations.

The study also has practical implications for urban planning and governance. Traffic signal management in Indonesian cities and indeed in cities across the Global South typically proceeds from a narrow definition of efficiency that privileges vehicular throughput over other values. A more democratic approach would acknowledge the legitimate interests of pedestrians, informal economy actors, and other non-motorized urban users, and would develop inclusive processes for balancing these interests in infrastructure design and management decisions.

CONCLUSION

This article has demonstrated that a single traffic signal at the Samsat-Kiarcondong intersection in Bandung, Indonesia, is not merely a technical artifact but a contested sociotechnical node in which fundamental questions of spatial and temporal democracy are continuously negotiated. Through the analytical lens of Actor-Network Theory, the analysis has traced four layers of controversy over group formation, the distribution of action, the agency of non-human objects, and the construction of truth that collectively reveal the political life of what initially appears to be a mundane piece of urban infrastructure. The key findings are threefold. First, the intersection generates a multiplicity of social group formations from "victim" motorists to informal economy actors, from rule-breakers to pedestrian beneficiaries each constituted through its particular relationship to the signal's temporal rhythm. These groups are not pre-given but produced through ongoing associational work, and their interests are frequently in conflict. Second, action at the intersection is distributed across a complex network of human and non-human actants including the traffic signal itself, the ATCS system, social media platforms, institutional mandates, and algorithmic logics such that no single actor can be identified as the "author" of any particular outcome. Third, the intersection is a site of multiple competing truth claims, in which technocratic knowledge claims based on data and traffic engineering expertise are contested by citizen counter-discourses based on lived experience and democratic legitimacy. Together, these findings support a reading of the *Kircon* intersection as a site of vernacular cosmopolitics a space in which the challenge of collective existence among heterogeneous actors is posed and negotiated in everyday practice. The informal economy actors who convert the signal's temporal gap into productive opportunity, the pedestrians who use the extended crossing time to move safely, and the motorists who contest the signal's authority through rule-breaking are all, in different ways, enacting claims to spatial and temporal justice that deserve acknowledgment in urban governance processes. Future research should extend this analysis through primary ethnographic fieldwork, participatory action research with informal economy actors at the intersection, and comparative analysis with other contested urban infrastructure sites in Indonesia and across the Global South. Quantitative methods including GPS tracking of mobility patterns around the intersection and analysis of ATCS data could complement the qualitative approach adopted here to provide a richer empirical picture of the network's dynamics. Ultimately, this study suggests that the study of urban justice cannot afford to remain at the level of aggregate measures and structural analysis alone. The granular, material, and relational analysis afforded by ANT offers indispensable insights into the specific mechanisms through which urban inequality is produced and contested. Society is not what holds people together; it is what is produced by all those movements of re-assembling. At *Kircon*, this reassembly is never finished and that, perhaps, is the most democratic thing about it.

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