Tracking Progress, Shaping Policies and Investments

The Asian Transport Observatory Approach

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Asian Transport Observatory

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ADB ASIAN DEVELOPMENT BANK

AIIB ASIAN INFRASTRUCTURE INVESTMENT BANK

Asian Transport Observatory: A regional platform for transport tracking

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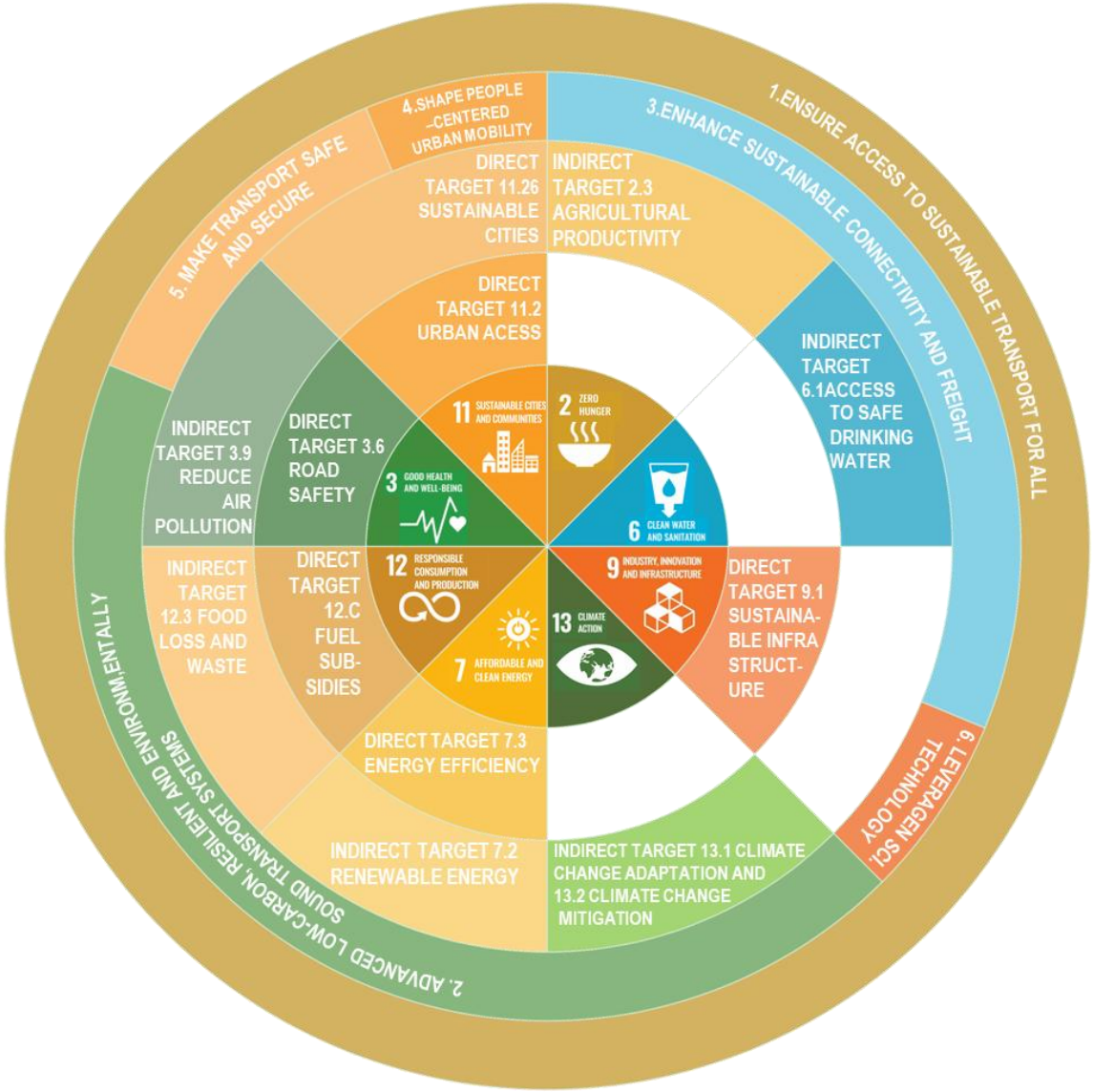
- *ATO provides a regional platform to track transport progress across Asia-Pacific*
- *ATO consolidates and analyzes transport data to support policy development and investment decisions*
- *ATO aligns transport tracking with global and regional commitments through a principles-based framework*

The global transport sector faces a defining moment as it enters the UN Decade of Sustainable Transport, which runs from 2026 to 2035. The transport sector connects people to jobs, education, and healthcare. These systems also enable the movement of freight that powers industries and global supply chains. However, this mobility often carries a heavy price. Asia and the Pacific region stand at the center of this challenge. The region represents more than half of the global population and economic output. The **Asian Transport Observatory (ATO)** emerged to help fifty-two Asian economies navigate these complex issues.

The Asian Development Bank (ADB) initiated the ATO in 2020 to strengthen the knowledge base on transport in Asia and the Pacific. The Asian Infrastructure Investment Bank (AIIB) joined this effort as a co-funder in 2023. Other funders, such as the World Bank, have contributed intermittently.

The ATO does more than collect data. It tracks the progress of the transport sector to support policy development and guide investments. This tracking focuses on several critical international agreements. These include the Sustainable Development Goals (SDGs), the Paris Agreement on climate change, and the Aichi 2030 Declaration on Environmentally Sustainable Transport.



ATO's Sustainable Transport Assessment Framework: Connecting transport assessment themes with SDGs

The ATO provides a robust framework for monitoring progress in the transport sector against global and regional commitments. This framework is structured around four foundational pillars: avoiding data distortion, shifting focus toward comprehensive analysis, improving capabilities and evidence quality, and securing adequate resources. Together, these pillars enable governments, development institutions, and regional organizations to track implementation of the Sustainable Development Goals, the Paris Agreement, the Aichi 2030 Declaration, the UN Decade of Sustainable Transport, and other transport-related international agreements. The Observatory demonstrates that rigorous, independent tracking mechanisms strengthen accountability and guide transformative investments across the Asia-Pacific region.

ATO's principles towards tracking follow the "Avoid-Shift-Improve and Finance" framework. This framework helps policymakers move away from biased data and shift toward comprehensive sector analysis. It guides improvements in technical capacity and the allocation of sustainable funding. This knowledge brief examines the ATO's multifaceted approach and documents its principles for tracking progress in the dynamic Asian transport landscape. These principles are beneficial for monitoring progress across regions, particularly for initiatives such as the **UN Decade of Sustainable Transport 2026-2035**.

AVOID

A1- Avoid biased and unbalanced data representation

A2 - Avoid unverifiable transport data

A3 - Avoid "blame and shame" approach to monitoring

SHIFT

S1 - Shift focus to all dimensions of the transport sector

S2 - Shift towards Structured Frameworks

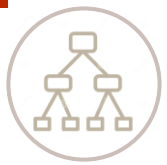
S3 - Shift the focus to transport policies and measures

S4 - Shift focus towards regional, sub-regional, national and urban benchmarking for contextualization

IMPROVE

I1 - Improve storytelling in making data meaningful

I2 - Improve the capacity of data generators



I3 - Improve and expand the data framework over time

I4 - Improve partnerships

FINANCE

F1 - Allocate adequate, flexible funding for transport monitoring

ATO's principles towards tracking follow the "Avoid-Shift-Improve and Finance" framework

1

Avoid Data Distortion and Maintain Monitoring Integrity

The effectiveness of any monitoring system depends on the quality and consistency of its data. Significant challenges arise when making cross-country comparisons. Different nations employ different data management practices and quality-control processes. The ATO applies the "Avoid" principle to ensure objectivity, accuracy, and credibility in its assessments.

Avoid biased and unbalanced data representation

- *Prevent bias through balanced, multi-source transport data*
- *Apply quality control throughout data collection and processing*
- *Strengthen credibility through transparency and documentation*

Assessing transport progress requires more than defining the right indicators. The challenge lies in securing consistent, high-quality data across diverse economies with different statistical systems and reporting standards. Inconsistent data management practices undermine cross-country comparisons and weaken the credibility of findings. Tracking mechanisms must therefore integrate multiple data sources—primary, secondary, peer-reviewed research, and official statistics—to ensure balanced representation.

The ATO is intentionally designed to prevent data bias. We incorporate quality control at every step of data collection, ensuring we do not favor specific policy approaches through selective measurement. We also guard against implicit agendas influencing how indicators are defined or interpreted. Using multiple data sources, i.e., official primary data with secondary data and peer-reviewed journals for each indicator, enables stakeholders to review findings transparently. This diverse approach uncovers subtleties that single-source data might miss, fostering trust among governments and donors that the Observatory reports objective facts rather than personal preferences.

Users can compare datasets from different sources. They can examine methodologies. They can make informed choices about which data suits their context and needs. This architecture prevents the ATO from becoming a "black box" where findings arrive without visible reasoning. Openness strengthens legitimacy.

Avoid unverifiable transport data

- *Use only verifiable, traceable transport data*
- *Build confidence through open access to data and indicators*
- *Strengthen progress monitoring with credible evidence*

Data integrity remains essential for producing credible evaluations of current conditions. The ATO relies only on data that can be verified or traced to reliable sources. Unverified information introduces unacceptable uncertainty that weakens conclusions. It produces poorly informed decisions with real consequences for millions of people who depend on transport systems. The ATO ensures that all relevant stakeholders have unrestricted access to data and indicators. This openness removes causes for doubt. When data are verifiable, they provide a solid foundation for learning and adaptation.

Verifiability requirements are vital for monitoring international agreements. Donor agencies, bilateral partners, and national governments must trust that reported progress is accurate. Governments also need confidence that achievements reported by other countries are genuine. The Paris Agreement, Sustainable Development Goals, and the Aichi 2030 Declaration all depend on credible implementation data. Poor verification standards can weaken these global commitments.

Avoid "blame and shame" approach to monitoring

- *Avoid monitoring practices that penalize disclosure*
- *Focus on identifying gaps and enabling improvement*
- *Promote learning-oriented accountability through transparency*

Traditional monitoring environments often penalize thorough disclosures. If stakeholders face negative consequences for reporting gaps or failures, they will stop sharing data. The ATO avoids labeling stakeholders as winners or losers. The goal is to identify and close gaps proactively while celebrating successes, without undermining the sources of the indicators or the stakeholders involved.

A supportive monitoring environment fosters open data sharing among stakeholders, enabling contributions without fear of negative repercussions. We recognize that each country has unique measurement needs, and adaptable approaches are necessary. Such an environment emphasizes learning and improvement over criticism, helping to drive positive change and better achieve sustainable transport objectives.

The ATO's use of multiple data sources for individual indicators demonstrates this principle. Stakeholders are enabled to evaluate and choose data and sources. This adaptability enhances transparency and encourages collective accountability. It also shifts the emphasis from criticism to improvement. Consequently, it leads to more sustainable progress toward global and regional transport objectives.

2

Shift Focus to Comprehensive Measurement and Strategic Context

Sustainable transport involves more than the movement of goods and people. It encompasses equitable access to services that drive social and economic development. The ATO uses the "Shift" principle to broaden the scope of monitoring. It moves the focus toward multidimensional indicators, comprehensive policy tracking, and regional benchmarking.

Shift focus to all dimensions of the transport sector

- *Capture transport's social, economic, and environmental impacts*
- *Measure progress across nine comprehensive transport dimensions*
- *Support planning with multi-modal and multi-scalar evidence*

The ATO recognizes that sustainable transport is a complex, multi-scalar, multidimensional concept that extends far beyond the movement of people and goods. It encompasses equitable access to services that drive economic and social development while addressing a wide array of social, environmental, and economic impacts. Therefore, a limited number of core indicators cannot fully capture this complexity. Because stakeholders in the sustainable transport agenda have diverse priorities, a broad set of indicators is necessary to monitor and account for the transport sector's structure, performance, and impacts.

At the ATO, we measure sustainable transport across nine dimensions: infrastructure; access and connectivity; activity and services; road safety; air pollution and health; climate change; socio-economic impact; miscellaneous aspects; policy and roadmaps. Together, these dimensions encompass the full spectrum of progress and challenges facing the transport sector, making the analysis comprehensive. We combine all modes across the passenger and freight sectors. The ATO national and urban database serves as a cornerstone, offering a wealth of information through its collection of over 650 transport indicators. These indicators span across 52 economies and 460 urban centers and are thoughtfully organized into nine distinct categories. This extensive coverage and categorization provide a detailed and nuanced understanding of the transport landscape. The data points' depth and the database's geographical breadth signify a substantial undertaking in data acquisition, ultimately enhancing the evidence available for transport planning and policymaking.

ATO Dimensions - Encompassing the Full Spectrum of Progress and Challenges Facing the Transport Sector in Asia and the Pacific

Adopting Structured Frameworks

- *Link drivers, impacts, and responses through analytical frameworks*
- *Align transport indicators with global and regional commitments*
- *Provide analytical context to inform intervention planning*

The ATO employs a set of complementary analytical frameworks—including the DPSIR (Driving Forces, Pressures, State, Impacts, and Responses) framework and results chain approaches—to guide data collection and analysis. Together, such frameworks allow the ATO to capture not only transport sector conditions and trends, but also the drivers behind them, their impacts, and the interaction with policy responses.

Such an integrated approach provides a comprehensive and detailed view of the transport sector, helping planners and decision-makers identify where interventions can deliver the greatest impact. It also ensures that transport data and indicators are directly aligned with global and regional commitments, including the Sustainable Development Goals, the Paris Agreement, the Aichi 2030 Declaration, and the UN Decade of Sustainable Transport.

Shift the focus to transport policies and measures

- *Track policies alongside outcomes*
- *Assess alignment between policy targets, design, and implementation*
- *Enable shared understanding of transport policy approaches across countries*

Outcome data reveals what is happening—whether emissions are rising or falling, whether safety is improving or deteriorating, whether access is expanding or contracting. But data on outcomes alone cannot explain why outcomes occur or where countries are headed. Understanding requires tracking policies, regulations, institutional arrangements, and commitments that shape outcomes.

The ATO maintains a dedicated policy-tracking database that covers approximately 260 policy measure types across the region. This is not a simple list of policy measures. Each policy measure receives rigorous qualitative analysis. We examine policy documents carefully to understand specificity and ambition. We assess whether policies include binding targets or aspirational goals. We evaluate implementation mechanisms. We track whether policies address transport as a standalone issue or integrate transport into broader climate, urban, or development strategies.

Policy tracking reveals several critical insights. First, it identifies gaps. Countries may set targets but lack policies to achieve them. They may commit to universal access, but fund infrastructure without services. They may pass safety laws, but provide insufficient enforcement resources. Tracking policies exposes these disconnects. Second, policy analysis enables learning. When governments observe that successful countries combine infrastructure investment with demand-management policies, they can adapt. When cities learn that their peer cities achieved emissions or congestion reductions through pricing mechanisms combined with transit expansion, they can innovate. Third, policy tracking supports accountability for global agreements. The Aichi 2030 Declaration requires signatory countries to adopt sustainable transport policies. The Paris Agreement requires countries to report transport policies in their Nationally Determined Contributions. The policy tracking database documents whether countries establish and improve policy frameworks over time.

The ATO tags each policy measure according to predefined criteria. These include thematic areas (climate change mitigation, road safety, access provision), strategic policy pillars aligned with the avoid-shift-improve-finance framework, and targeted transport modes and interventions. This structured approach enables systematic comparison. It identifies successes and failures. It highlights which policy combinations produce results.

Shift focus towards regional, sub-regional, national and urban benchmarking for contextualization

- *Preserve regional, national and urban context when interpreting transport data and trends*
- *Use peer-based benchmarking to distinguish structural constraints from policy effort*
- *Translate international transport commitments into regionally meaningful insights*

Aggregating data within frameworks like the Sustainable Development Goals or the Paris Agreement enables global reporting, but often strips away essential context. Transport sector challenges and opportunities differ fundamentally between densely populated Asian cities and sparsely populated regions. Infrastructure investment requirements vary between high-income countries and low-income developing nations. Policy effectiveness depends on local institutional capacity, geography, and demand patterns.

The ATO anchors its analysis within regional, sub-regional, national, and urban contexts. This approach reveals where countries and regions stand relative to peers. It identifies which countries lead in particular dimensions and which lag behind. It shows whether a country's slow progress reflects systemic challenges or insufficient effort. It enables meaningful benchmarking that countries can learn from.

A concrete example illustrates the importance of this principle. The Aichi 2030 Declaration commits signatory countries to "universally accessible, safe, affordable, efficient, resilient, clean and low-carbon passenger and freight transport in Asia." The Declaration articulates six long-term goals. The ATO monitors the implementation of all six goals in each signatory country. We measure progress against regional averages and identify regional performance patterns. We identify which countries have policy frameworks that support the Aichi Declaration goals, and which do

not. We document investment levels and institutional arrangements. We compare signatory countries with other regions to provide additional context. This comprehensive benchmarking clarifies whether each country is genuinely committed to the Aichi principles or simply signed the Declaration.

Another clear example is the establishment of the Pacific Transport Platform within the ATO architecture, funded by the World Bank. This project aims to address the ongoing lack of organized, accessible transport data in the Pacific and to promote data-driven policy reform and investment planning.

The ATO also engages with regional initiatives, such as the Asia-Pacific Road Safety Forum and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) transport working groups, to localize data and insights. Sub-regional transport discussions in South Asia, Southeast Asia, East Asia, and the Pacific use Observatory data to inform discussions. National governments could use Observatory benchmarking to set priorities and allocate resources. This cascade from the global to the national level ensures that international agreements translate into concrete action.

The ATO's relationship with the Environmentally Sustainable Transport (EST) Forum exemplifies this approach. The EST Forum brings together transport ministers and leaders to advance sustainable transport across the region. The Observatory provides data and analysis designed explicitly for EST discussions. We prepare progress reports on the Aichi goals. We highlight emerging challenges and successful policies. We enable stakeholders to compare their countries' performance and learn from peers. This strategic use of data strengthens EST Forum deliberations and accelerates regional progress toward agreed goals.

3

Improve Story Telling, Capacities, and Partnerships

The "Improve" principle focuses on the ongoing evolution of the transport data framework. As mobility systems and technologies advance, monitoring must adapt. The ATO emphasizes better storytelling, capacity building, iterative expansion, and strategic partnerships.

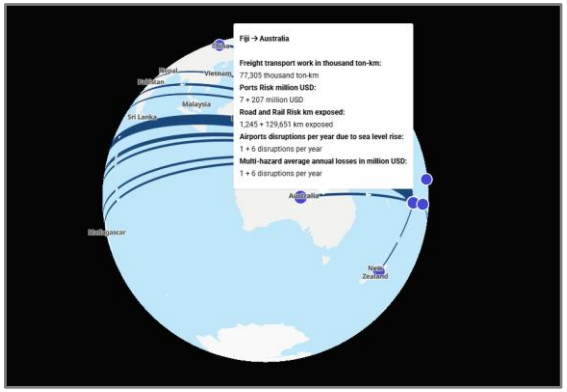
Improve storytelling in making data meaningful

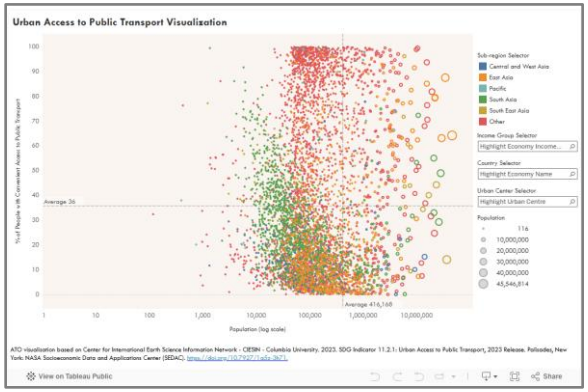
- *Move from static reporting to data-driven storytelling*
- *Expand the reach of transport evidence through accessible tools*
- *Capture multi-dimensionality in communicating transport narratives*

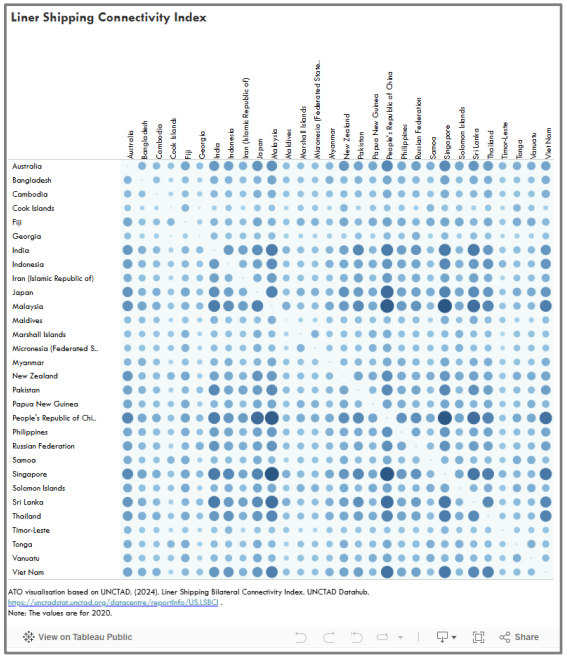
The ATO's shift from "Asian Transport Outlook" to "Asian Transport Observatory" highlights the growing importance of storytelling. This shift strengthened how evidence is communicated, supporting more informed investment and policy decisions in the transport sector. The Asian Transport Outlook focused on producing reports, while the Asian Transport Observatory emphasizes engaging users in ongoing dialogue through data. This change recognizes that simply providing an Excel table of data does not motivate action. Instead, combining rigorous analysis with compelling presentation and conversations creates impact. The ATO aims to deepen understanding of the transport sector's performance and complexities by presenting data through multidimensional, multiscale perspectives. For example, evaluating public transport performance involves telling a story using data on infrastructure development, vehicle manufacturing and trade, registrations, usage, electrification, emissions, and policy frameworks.

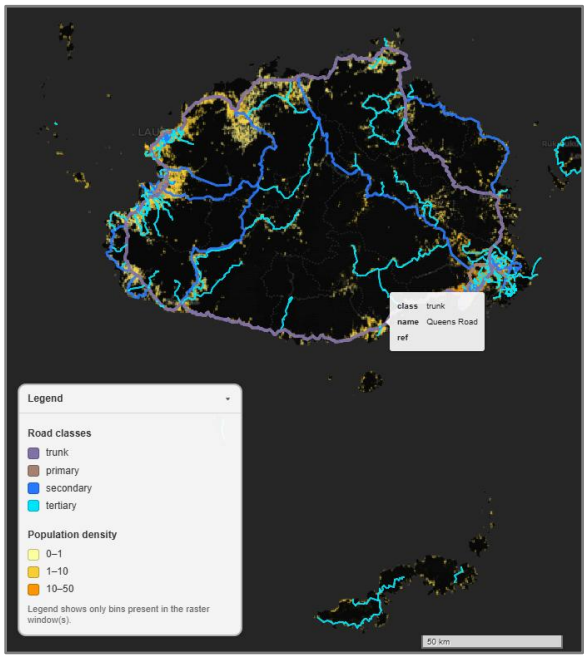
The ATO experience also indicates a strong interest in interactive visualization tools that utilize visual representations to enhance the accessibility and impact of complex data. Thematic interactive tools—e.g. trade, urban access, road crash fatalities, climate financing— enable users to investigate data engagingly and intuitively, promoting a better comprehension of essential information issues.

ATO's impact is strengthening, as evidenced by the number of citations for its knowledge products. In 2025, ATO data and knowledge products have been cited more than 200 times and have been downloaded more than at least 280 thousand times. The data workbooks have been downloaded almost 250 thousand times.









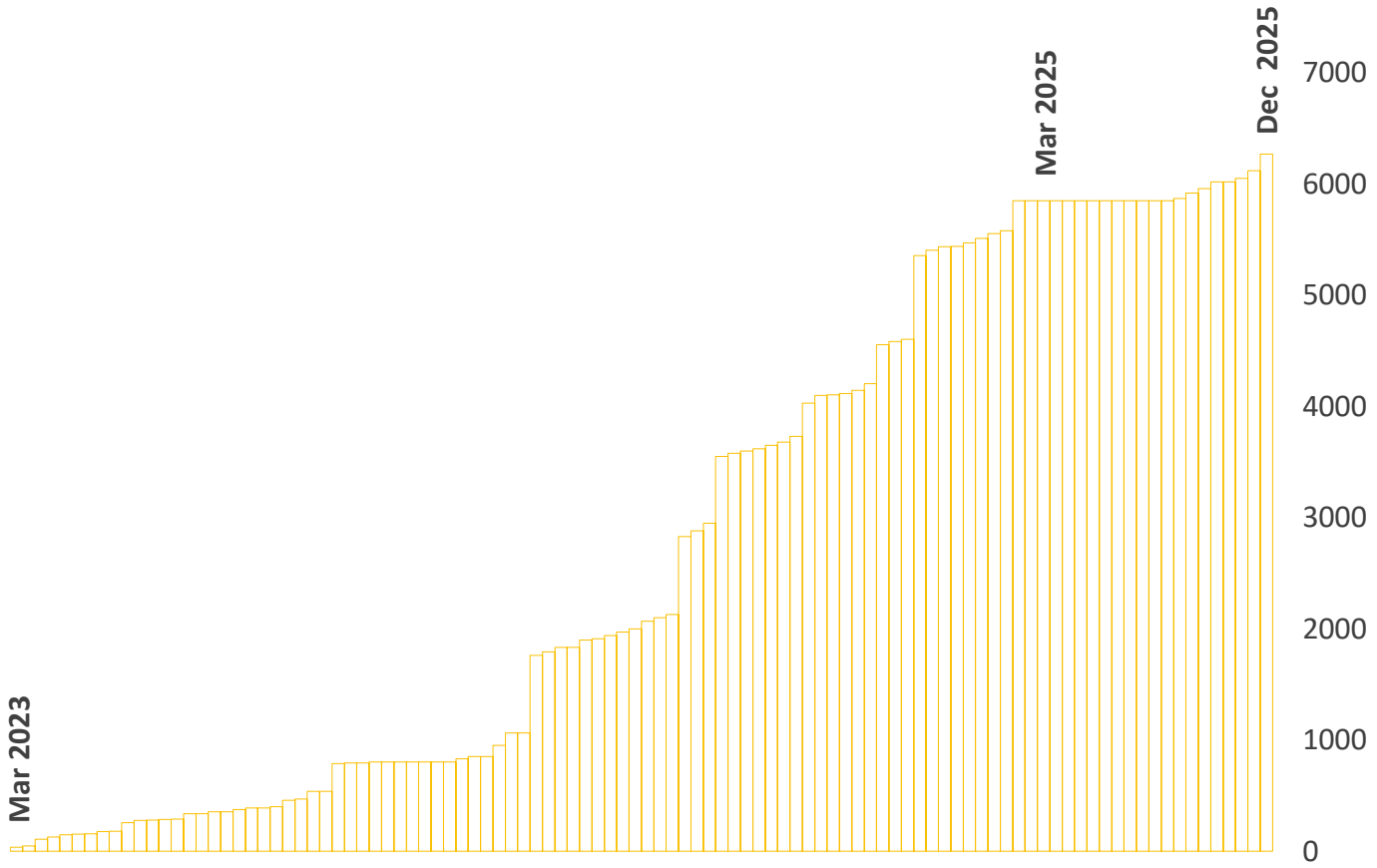
ATO's Thematic Interactive Tools Enable Users to Investigate Data Engagingly and Intuitively

Improve the capacity of data generators

- *Support capacity building across transport data producers, and users*
- *Improve data literacy through training and exchange*
- *Enable collaboration for data-informed decisions*

Transport data originates from many actors: national statistical offices, ministries, city transport authorities, universities, private consultants, and international organizations. The quality, consistency, and timeliness of this data vary substantially. Some countries maintain robust statistical systems. Many do not. Some cities track detailed operational data. Others rely on crude estimates. Improving data quality requires systematically strengthening the capacity of all these actors.

The ATO invests in targeted training and knowledge-sharing platforms. We conduct and participate in workshops on transport data and policies. We provide guidance on measurement. We demonstrate digital tools and platforms. We facilitate knowledge exchange between countries with strong data systems and those building capacity. These investments cultivate data literacy, and elevate data-driven discussions geared at sensible and time-sensitive decisions on transport. These also facilitate network building, and realizing collaboration opportunities among transport practitioners, policy and decision makers.



Cumulative Number of Participants to ATO Presentations: Knowledge Exchange Strengthens Data Literacy and Supports Timely, Evidence-based Transport Decisions

Capacity strengthening is significant for monitoring compliance with international agreements. Countries with weak statistical capacity cannot reliably report progress toward the Sustainable Development Goals or the Paris Agreement. They cannot verify their own claims of progress. Regional and global reporting suffers. The ATO's capacity-building work strengthens each country's ability to participate meaningfully in global monitoring systems. This benefits the countries themselves and strengthens accountability for global commitments.

Capacity building produces cascading benefits. Data generators produce higher-quality information. Data users apply that information more effectively. Evidence-based policy formulation improves. Investment decisions have become more strategic. Transport systems become more sustainable. This progression from capacity development to systematic improvement reflects the Observatory's long-term commitment to the quality of evidence.

Improve and expand the data framework over time

- *Expand transport indicators through phased, incremental approaches*
- *Design for scalability while prioritizing essential indicators*
- *Reduce implementation risks through stepwise expansion*

Transport systems evolve rapidly. New technologies emerge. Mobility patterns change. Priorities shift. A rigid monitoring framework designed for today's needs will be outdated within a few years. Attempting to capture all desired data immediately creates several problems: excessive resource demands, delays in starting monitoring, and inflexible frameworks that cannot adapt to changed circumstances. Evidence from successful monitoring initiatives suggests a different approach.

The ATO employs a phased, incremental tracking strategy. We began with a well-defined set of core indicators that were mutually exclusive, collectively exhaustive, and aligned with available resources. This focused approach yielded early insights while laying the foundation for iterative improvement. Over time, we added indicators, extended geographic coverage, and refined approaches. This stepwise approach ensures the framework remains responsive, scalable, and impactful.

The ATO Cost Database illustrates demand-driven expansion. The Observatory began with limited cost data. Demand from development agencies for cost benchmarking information led to the systematic collection and analysis of this information. The

database now includes over 1,500 transport projects across Asia and the Pacific. It enables cost benchmarking across subregions and income groups. The ability to compare project costs across different contexts is essential for assessing feasibility and allocating resources efficiently. This database emerged not from initial planning but from responsive adaptation to user needs.

Incremental expansion also reduces implementation risk. Early indicators can be refined before adding complexity. Data collection systems can be tested at small scale before expansion. Partnerships can be built gradually. User communities can develop organically. This reduces waste and improves quality relative to approaches that attempt everything simultaneously.

Importantly, incremental expansion does not mean slow progress toward global agreement monitoring. Rather, it means starting with indicators essential for key agreements and then progressively adding supporting indicators that provide a richer context.

Improve partnerships

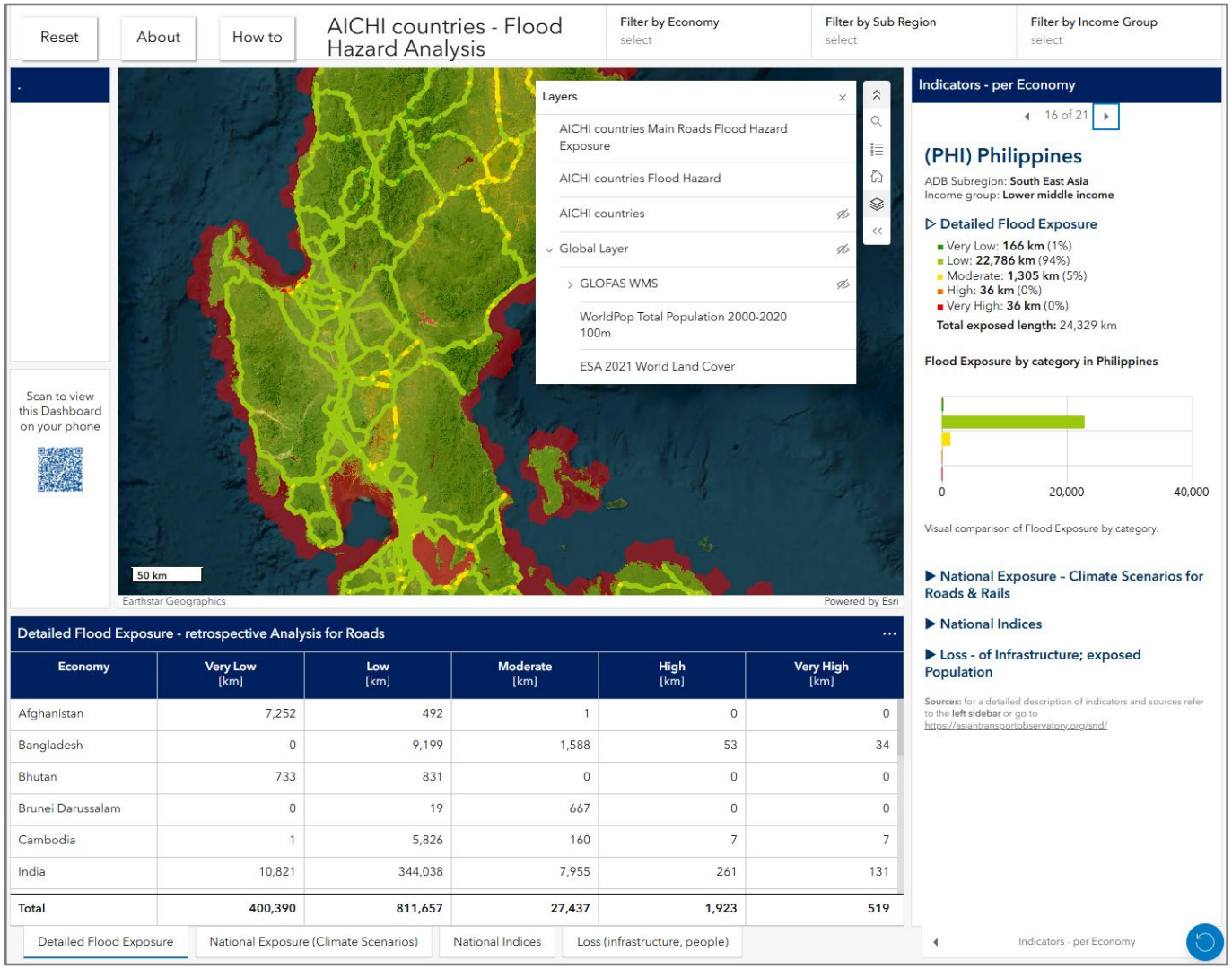
- *Strengthen collaboration across regional and national partners*
- *Improve data collection, analysis, and sharing through partnerships*
- *Expand collective analytical capacity via partnerships*

Strengthening data partnerships is fundamental for effective and sustained monitoring initiatives. Continuous and robust collaboration is needed to oversee and manage the transport sector. This demands active participation from various stakeholders, including regional, sub-regional, and national data partners, academic institutions, local entities, and international organizations. Such collaborations are key to improving data collection, comprehensive analysis, and efficient sharing. By fostering these relationships, stakeholders can reduce duplication of efforts, confirm data accuracy, optimize resource usage, and strengthen the overall reliability of monitoring processes. These collaborative frameworks are essential for ensuring data quality, promoting transparency, and aiding the formulation of evidence-based policies and strategic investments in the transport sector.

Strategic partnerships exemplify this approach. The Memorandum of Understanding between the International Road Federation (IRF) and the Observatory advances sustainable transport initiatives through data-driven insights, innovative research, and joint capacity-building. The partnership with the Asia Pacific Road Safety Observatory (APRSO) merges analytical strengths to enhance regional road safety monitoring.

Partnerships with institutions such as the Society of Transport Engineers Nepal (SOTEN), and the Indonesia Transport Society (MTI) expands outreach at both national and local levels. These examples underscore the co-benefits of fostering strong ties among regional, sub-regional, and national data partners and observatories.

A clear example of partnerships creating opportunities is the European Space Agency's Global Development Assistance Program, which collaborates with major international financial institutions like the Asian Development Bank (ADB). Through this initiative, a European-based firm, ABG is developing a prototype tool in partnership with the ATO that focuses on elevating the integration of transport and resilience into policy and investment discussions. This tool analyzes flood exposure of road assets in countries that have signed the Aichi Declaration 2030, using multiple layers of geospatial data such as recent flood events, seasonal water presence, precipitation, hydrologic soil groups, and terrain features.



Cooperation in Motion: ATO and ESA-Powered Global Development Assistance Program - Flood Exposure of Road Assets in Countries Supporting the Aichi Declaration 2030

Make Finance Flexible

Evidence-based transport planning requires sustainable and well-resourced monitoring systems. The "Finance" principle emphasizes the need for adequate and flexible funding. This funding supports the evolution of products and the maintenance of collaborative efforts.

Allocate adequate, flexible funding for transport monitoring

- *Sustain transport monitoring through adequate financial resources*
- *Effective observatories need support for functions beyond data collection*
- *Flexibility enables resource mobilization for evolution and expansion*

Sustainable and well-resourced monitoring systems are vital for evidence-based transport planning. International experience consistently underscores the value of transport observatories in improving data quality, accessibility, and application. This is exemplified by the support of the ADB and the Asian Infrastructure Investment Bank (AIIB) in establishing and sustaining the ATO. Subsequently, additional resources have been provided by the United Kingdom Foreign, Commonwealth & Development Office (UK-FCDO) and the World Bank to support specific elements that contribute towards filling the gaps.

As the founder and lead funder of the ATO, the ADB serves as an essential facilitator in the ATO's evolution. The ATO is granted access to ADB's extensive regional network, profound expertise in transport development, and substantial resources, which enhance its credibility and facilitate engagement with key stakeholders. The AIIB has also emerged as a significant partner, providing funding and additional opportunities for collaboration on projects and initiatives.

Yet funding from development institutions alone is insufficient for observatories that connect regional, sub-regional, and national partners. Dedicated financial resources support critical functions beyond data collection and processing. These include partnership coordination with universities, subnational entities, and local stakeholders. They include capacity-building workshops and knowledge-sharing platforms. They include the development and maintenance of data platforms and visualization tools. They include convening forums in which governments and organizations learn from one another. These collaborative functions require ongoing investment.

Flexible funding also enables specialized profiles and custom analyses that respond to specific agreement-tracking needs. The Observatory maintains a specialized profile on road safety in partnership with APRSO. Custom reports support the EST Forum. Analytical products designed for the UN Decade of Sustainable Transport are developed on demand. These specialized products require resources beyond standard monitoring operations. Yet they directly advance international agreements. Securing flexible funding for specialized products strengthens the Observatory's contribution to global commitments.

https://asiantransportobservatory.org/

Translating data into insights, policies and investments

Asian Transport Observatory