United Nations | Department of Economic and Social Affairs

Status of SDG 6 Implementation in Landlocked Developing Countries (LLDCs)

Water as a Crossroads of Development and Climate Risk

Prepared by

Marisha Wojciechowska

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July 31st, 2025

Executive Summary

Landlocked Developing Countries (LLDCs) sit at a critical juncture: deeply vulnerable to the cascading impacts of climate change, yet urgently in need of stronger water systems to build resilience, safeguard health, and unlock sustainable development. This report was commissioned by the United Nations Department of Economic and Social Affairs (UN-DESA) with support from the Government of Germany and in collaboration with UN-Water. It also builds on the narrative and evidence presented at the Fourth International Conference on Financing for Development (FfD4), where water was framed not just as a development priority, but as a strategic lever for climate adaptation. Drawing on the latest UN-Water global dataset and two LLDC country acceleration case studies (Bhutan and Rwanda), the analysis presents a mixed but revealing picture: while over half of LLDCs report positive trends across SDG 6 indicators, service coverage for safe drinking water and sanitation remains critically low, institutional coordination is weak, and many countries lack the readiness to absorb financing at scale. Yet momentum is building. The experiences of countries that are advancing, against the odds, offer a blueprint for how LLDCs can move from fragmented progress to systemic transformation. The opportunity is clear. But it must be seized with urgency, coordination, and commitment.

Water security lies at the intersection of development priorities and climate risks. For Landlocked Developing Countries (LLDCs), this dual vulnerability is especially pronounced: structural geographic constraints limit access to water, while climate change exacerbates volatility through droughts, floods, and glacial retreat. Strengthening water systems is therefore not just a development imperative: it is also among the most effective pathways to building resilience. Water connects risks, sectors, and solutions, and in LLDCs, it must be addressed as a strategic entry point for both development and climate action.

LLDCs are highly vulnerable to climate-driven water stress, which can manifest in more frequent and severe droughts, flooding, glacial retreat, and shifting rainfall patterns, among others. In many cases, water systems in LLDCs lack the resilience to absorb these shocks. Agricultural production, which is the largest water user and a critical economic pillar in most LLDCs, is increasingly threatened by erratic precipitation and extreme weather events. Urban centers face growing risks from stormwater surges and overwhelmed infrastructure.

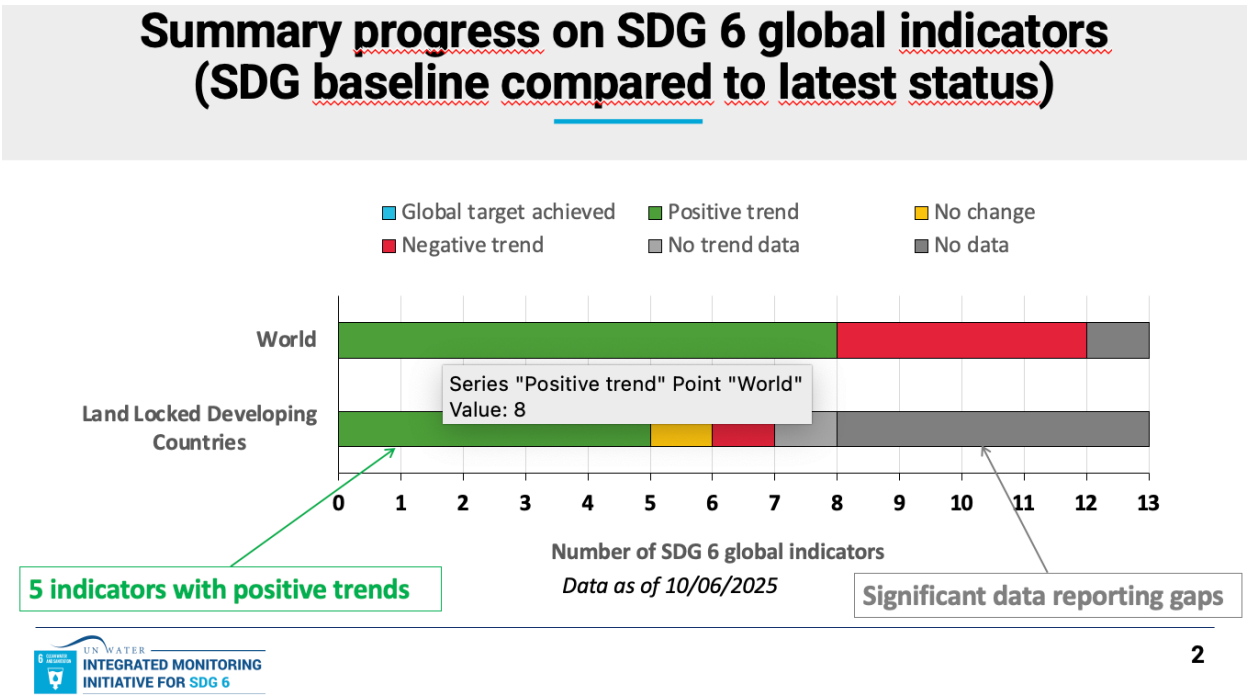
These cascading impacts are not just environmental, they carry real consequences for food security, public health, gender equality, displacement, and peace. SDG 6, ensuring availability and sustainable management of water and sanitation for all, is therefore not only a development goal for LLDCs; it is a foundational development need for climate adaptation and systemic resilience.

By explicitly linking water and climate in the analysis of SDG 6 implementation, this report recognizes that water is a connector, between sectors, between countries, and between risks. For LLDCs, strengthening water systems is one of the most effective and necessary pathways to climate-resilient development. This framing also guided the UN-DESA-led side-event on “Financing Water Flows” at the Fourth International Conference on Financing for Development (FfD4) in Sevilla, Spain in July 2025, which spotlighted the urgent financing gap for SDG 6, particularly in LLDCs and SIDS, where water insecurity is compounded by climate vulnerability. The event underscored climate finance as a catalytic opportunity to accelerate water-related investments that deliver co-benefits for health, resilience, biodiversity, and livelihoods.

1. Where Do LLDCs Stand? A Mixed but Encouraging Picture

The following section presents the UN-Water dataset, based on data available as of June 10, 2025, offering a comprehensive snapshot of progress, gaps, and trends across all 32 Landlocked Developing Countries (LLDCs) in relation to the 13 global SDG 6 indicators.

This section highlights where LLDCs are advancing, where performance remains off-track, and where systemic bottlenecks, such as lack of trend data, low service coverage, and limited institutional capacity, continue to inhibit progress. The insights presented herein form the analytical backbone of this report and provide an evidence-based foundation for the key findings and recommendations that follow.



This slide #2 compares the progress of LLDCs on each of the 13 global SDG 6 indicators against the global average, using baseline data from the start of the SDG period (2015–2017) and the most recent available data (2019–2022).

The analysis shows that LLDCs report positive trends on 5 of the 13 global SDG 6 indicators, a sign of emerging momentum. At the same time, over half of the indicators lack sufficient trend data, highlighting serious monitoring limitations. This makes it difficult to form a full picture of progress, despite some encouraging signs.

Summary statistics: status in the LLDC

Percent (%) of indicators with no data reported	
World	8%
LLDC	20%
Mountain LLDC	19%
Lowland LLDC	20%
LLDC in endorheic basins in Asia	21%
LLDC in Central Africa	18%
LLDC in Southern Africa	23%

Percent (%) countries where more than 50% of the reported indicators have achieved the global target or have positive trends	
World	36%
LLDC	53%
Mountain LLDC	53%
Lowland LLDC	53%
LLDC in endorheic basins in Asia	67%
LLDC in Central Africa	57%
LLDC in Southern Africa	50%

Percent (%) countries where more than 50% of the reported indicators have high level status	
World	52%
LLDC	59%
Mountain LLDC	47%
Lowland LLDC	73%
LLDC in endorheic basins in Asia	78%
LLDC in Central Africa	43%
LLDC in Southern Africa	63%

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Slide 3 gives us a high-level overview of how LLDCs are doing on SDG 6 based on three key measures: data availability, progress, and performance.

1. Data Gaps Are Still Too High
Across LLDCs, 20% of the global water and sanitation indicators have no data reported. That's more than double the global average of 8%. This makes it very hard to understand what's working, what's not, or where support is most needed. The data gap is even wider in some regions, such as in Southern Africa (23%) and in endorheic basins in Asia (21%).

2. Encouraging Signs of Progress Where Data Exists
53% of LLDCs report that more than half of their water and sanitation indicators are improving or have already met global targets. That's significantly better than the global average of 36%.

3. Many LLDCs Are Reaching High Performance Levels
59% of LLDCs say they've achieved a high level of performance (on more than half of the reported indicators). This is above the global average of 52%. Some regions are leading the way: lowland LLDCs report 73% high-level status, and endorheic basin countries in Asia reach 78%, showing that progress is not only possible, but already happening.

1.1 Comparative Analysis of SDG 6 Implementation Across LLDC Subsets

UN-Water's Slides 4 to 8 present regional data on SDG 6 progress across five LLDC groupings: mountain, lowland, endorheic basins, Central Africa, and Southern Africa.

a. Mountain LLDCs

Mountain LLDCs show moderate levels of engagement and mixed progress. Countries like Nepal**,** Azerbaijan, and Bolivia report a reasonable number of indicators with positive trends, but there are also several negative trends and data gaps. Notably:

- Most countries show 4-6 indicators with positive trends (green).
- Negative trends (red) are present in nearly all countries, including Eswatini, Uganda, and Lesotho.
- No data (dark gray) and no trend data (light gray) account for 3-5 indicators in many countries.

Summary:
Mountain LLDCs are showing signs of progress on several indicators, but this momentum remains fragile. Data gaps persist in key areas, and several countries report stagnation or regression on sanitation and wastewater. The mixed performance underscores the need for more targeted support to close monitoring gaps and accelerate progress where gains have begun.

b. Lowland LLDCs

Lowland LLDCs display stronger performance overall, with higher levels of positive trends and several countries achieving global targets (light blue).

- Countries like Botswana, Kazakhstan, Uzbekistan, and Turkmenistan report high numbers of positive trends, and in some cases, global targets achieved.
- Paraguay, Moldova, and Mongolia also perform relatively well, though with some "no change" or "negative trend" indicators mixed in.
- Data gaps remain, but they are less severe than in mountain or Central African LLDCs.

Summary:
Lowland LLDCs appear to be the best-performing subset. Countries like Botswana, Kazakhstan, and Uzbekistan show sustained positive trajectories, limited data loss, and some achievement of SDG 6 targets.

c. Endorheic Basin LLDCs (Asia)

This group reflects strong engagement with monitoring and a concentration of positive trends, especially among Kazakhstan, Uzbekistan, Mongolia, and Armenia.

- Positive trends dominate the profiles of almost all countries.
- Many indicators are improving.
- Data gaps still exist but are not as severe as in Central Africa or the mountain group.

Summary:
Endorheic basin LLDCs show the highest internal consistency in positive trends across most countries, particularly in Central Asia. However, the number of fully achieved targets remains limited, pointing to ongoing transition rather than completion.

d. Central African LLDCs

Central African LLDCs are among the most challenged groups, with widespread data gaps, negative trends, and few achieved targets.

- Countries like Chad, Mali, and Central African Republic show 3-4 indicators trending negatively.
- Almost all countries report several indicators with no data or no trend data, with 4-5 indicators routinely missing.
- Positive trends are present but often outweighed by stagnation and regression.

Summary:
Central African LLDCs face critical setbacks, with large information gaps, poor performance in wastewater and sanitation, and minimal progress toward targets. South Sudan is a slight outlier with one global target achieved but also shows significant red and gray areas.

e. Southern African LLDCs

This group shows mixed performance with strong positive trends in some countries and deep challenges in others.

- Botswana and Zambia stand out with achieved targets and many improving indicators.
- Zimbabwe, Lesotho, and Eswatini report more negative trends and widespread data gaps.
- Several countries show 2-4 indicators with “no change” or “no trend data”.

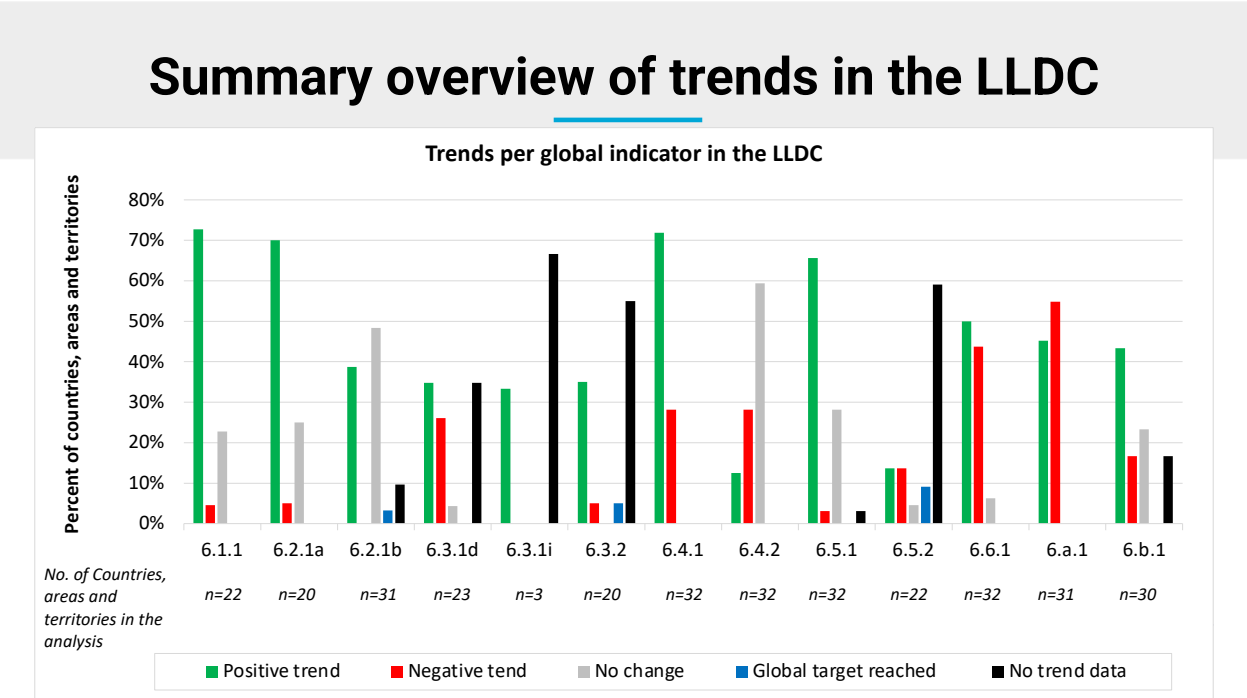
Summary:
Southern African LLDCs are split: some countries (like Botswana and Zambia) are advancing rapidly, while others (like Zimbabwe and Lesotho) remain hindered by stagnation or regression. The subregion reflects high variability in institutional capacity and financing access.

g. Snapshot: Who's On Track and Who's Lagging

LLDC Subgroup	Key Strengths	Key Constraints
Lowland LLDCs	Highest number of positive trends and targets met	Highest number of positive trends and targets met
Endorheic Basin LLDCs	Widespread positive trends across most indicators	Widespread positive trends across most indicators
Mountain LLDCs	Progress evident in several core indicators	Progress evident in several core indicators
Southern African LLDCs	Some countries show accelerating trends and good cooperation on shared water resources	Some countries show accelerating trends and good cooperation on shared water resources
Central African LLDCs	Some progress in specific indicators	Some progress in specific indicators

This comparative breakdown highlights that while some LLDCs are showing strong momentum, others, particularly in Central Africa and parts of Southern Africa, are facing persistent challenges, including weaker performance trends and limited data availability.

1.2 Key Findings on SDG 6 in LLDCs: Progress Signals and Strategic Gaps

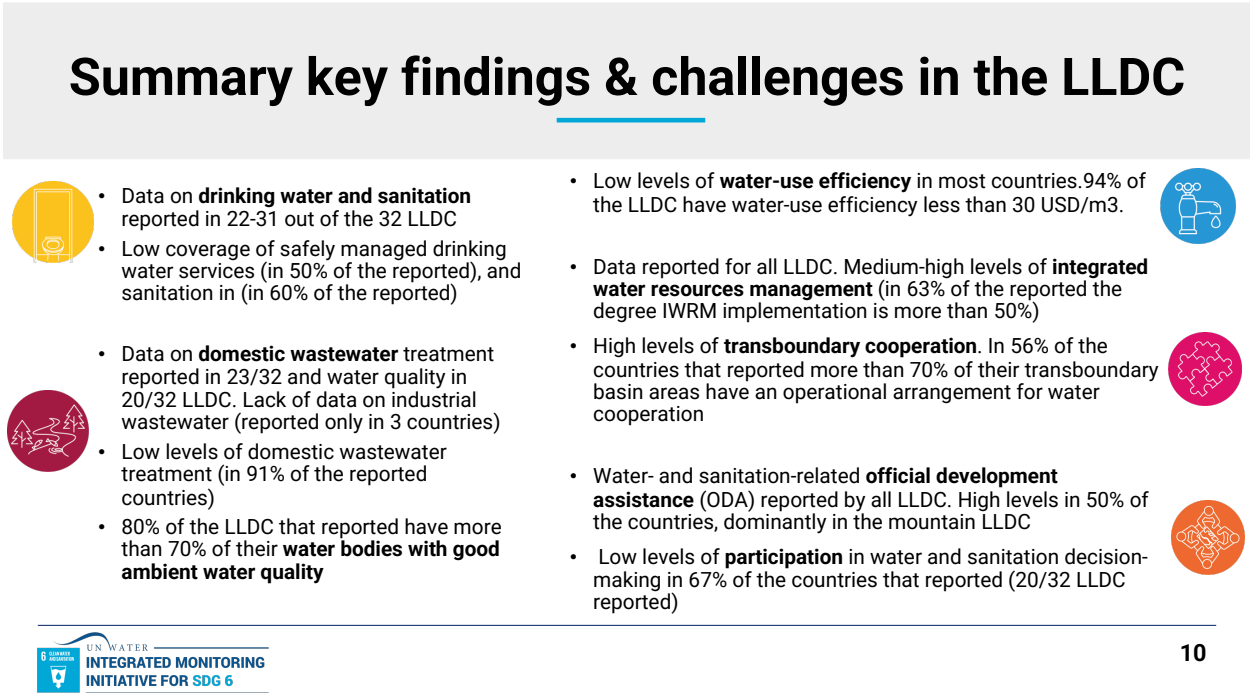


This slide 9 presents a summary overview of trends across all 13 global SDG 6 indicators for LLDCs. It illustrates, for each indicator, the share of countries reporting a positive trend, negative trend, no change, global target reached, no trend data, or no data at all. Each bar represents the percentage of countries (from the total sample size noted beneath each indicator) falling into each of these trend categories.

From this overview, we can see that positive trends are evident in six of the thirteen indicators -specifically 6.1.1 (safely managed drinking water services), 6.2.1a (safely managed sanitation), 6.4.1 (water-use efficiency), 6.5.1 (IWRM implementation), 6.6.1 (ambient water quality), and 6.b.1 (local participation in WASH governance). Among these, four indicators - 6.1.1, 6.2.1a, 6.4.1, and 6.6.1 - stand out, with more than 65% of reporting LLDCs showing progress. This suggests that while challenges remain, a number of LLDCs are making tangible strides in expanding service delivery, improving water-use productivity, protecting water bodies, and involving communities in decision-making.

The presence of black bars (no trend data) and grey bars (no data) across several indicators also highlights ongoing reporting and capacity gaps. For example, indicator 6.3.1i (industrial wastewater) stands out for its extremely limited data coverage, making it difficult to assess progress in that area. Likewise, indicators such as 6.a.1 (international cooperation) and 6.5.2 (transboundary cooperation) show a significant share of countries with no trend data.

Overall, the slide 9 overview shows a fragmented progress landscape. LLDCs are advancing in certain areas, particularly for water quality, sanitation, and governance, but face stalled or regressing performance elsewhere. Widespread data gaps further constrain the ability to fully track progress, especially on industrial wastewater and transboundary cooperation.



This slide 10 provides a consolidated summary of the main findings and persistent challenges facing LLDCs in implementing SDG 6, based on the most recent UN-Water data. It presents both quantitative insights and qualitative observations drawn from 32 LLDCs, covering the breadth of SDG 6 indicators.

The first major takeaway is that coverage of basic water and sanitation services remains limited. Data on safely managed drinking water and sanitation was reported by 22 to 31 countries. Among these, only 50% of reporting LLDCs meet the benchmark for drinking water, and 60% for sanitation. These figures highlight a core service delivery gap that continues to affect millions across LLDCs.

In the area of wastewater, progress is even more constrained. While 23 LLDCs reported data on domestic wastewater treatment, 91% of them show low treatment levels, pointing to serious risks for public health and environmental contamination. Industrial wastewater monitoring is nearly absent - only three countries provided data, which suggests a critical data blind spot in pollution management and regulatory oversight. On a more positive note, 80% of reporting LLDCs have over 70% of their monitored water bodies in good ambient condition, indicating that freshwater ecosystems in many LLDCs remain relatively intact, though vulnerable.

Water-use efficiency is another area of concern. Data from all 32 LLDCs show that 94% generate less than USD 30 per cubic meter of water, reflecting limited productivity and poor linkage between water resource use and economic returns. However, in contrast to these operational deficits, institutional capacity shows moderate strength: 63% of reporting LLDCs have achieved medium to high levels of integrated water resources management (IWRM) implementation.

On transboundary cooperation, a vital issue for LLDCs given their reliance on shared water basins, the data shows that 56% of reporting countries have operational arrangements covering more than 70% of their transboundary waters. This indicates promising engagement at the regional level, though full implementation remains uneven.

Financial support through Official Development Assistance (ODA) continues to play a pivotal role. All LLDCs reported receiving ODA for water and sanitation, but only half reported high levels of support, largely concentrated in mountain LLDCs. This uneven distribution could reflect geographic or geopolitical prioritization in aid flows.

Lastly, the data reveals that participation in water and sanitation decision-making is low, with 67% of reporting LLDCs (20 of 32) scoring poorly on this indicator. This suggests weak local engagement, which can undermine long-term sustainability, equity, and accountability in water governance.

In summary, this slide 10 underscores a landscape marked by limited service coverage, serious gaps in wastewater treatment, low efficiency, and uneven community participation, but also shows signs of institutional progress and regional cooperation, particularly through IWRM and transboundary mechanisms.

1.3 Refined Analysis: Country-level Performance on SDG 6 Global Indicators in LLDCs (2019-2022)

Summary status SDG 6 global indicators in the LLDC (data from 2019-2022)

Very high level / Very low stress; High level / Low stress; Medium high level / Medium low stress; Medium low level / Medium high stress; Low level / High stress; Very low level / Very high stress; No data; Not applicable

SDG 6 indicator	6.1.1	6.2.1a	6.2.1b	6.3.1d	6.3.1i	6.3.2	6.4.1	6.4.2	6.5.1	6.5.2	6.6.1	6.a.1	6.b.1
Unit	%	%	%	%	%	%	USD/m3	%	%	%	%	M USD	#
World	**73**	**57**	**75**	**58**	**?**	**56**	**21**	**19**	**57**	**59**	**1**	**8496**	**2**
Land Locked Developing Countries	**37**	**32**	**36**	**21**	**?**	**73**	**4**	**?**	**53**	**?**	**3**	**1854**	**?**
Afghanistan	30	?	48	?	?	?	1	55	12	?	3	67	5
Armenia	82	11	94	1	22	?	4	60	46	10	0	24	?
Azerbaijan	72	69	89	41	?	57	4	57	55	22	10	1	6
Bhutan	73	51	93	40	?	?	5	1	33	?	-5	12	2
Bolivia (Plurinational State of)	?	?	27	58	?	56	13	1	55	95	-18	123	0
Botswana	?	?	?	?	?	84	66	2	56	100	-26	1	3
Burkina Faso	?	10	9	3	?	9	15	8	70	95	20	67	4
Burundi	?	?	6	?	?	100	7	10	48	88	0	73	1
Central African Republic	6	13	22	1	?	?	18	0	44	?	1	10	0
Chad	6	11	26	2	?	?	8	4	38	44	21	30	0
Eswatini	?	?	24	17	?	70	4	78	58	92	-30	9	6
Ethiopia	13	7	8	3	43	73	6	32	41	?	2	266	1
Kazakhstan	89	?	99	36	2	49	8	34	51	63	5	0	6
Kyrgyzstan	76	93	100	19	?	?	1	50	38	39	0	38	6
Lao People's Democratic Republic	18	61	56	10	?	80	2	5	68	?	8	100	1
Lesotho	28	48	6	?	?	65	42	3	53	50	0	14	6

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Data as of 10/06/2025

Summary status SDG 6 global indicators in the LLDC (data from 2019-2022) *cont.*

Very high level | High level | Medium high level | Medium low level | Low level | Very low level | No data | Not applicable
Very low stress | Low stress | Medium low stress | Medium high stress | High stress | Very high stress

SDG 6 indicator	6.1.1	6.2.1a	6.2.1b	6.3.1d	6.3.1i	6.3.2	6.4.1	6.4.2	6.5.1	6.5.2	6.6.1	6.a.1	6.b.1
Unit	%	%	%	%	%	%	USD/m3	%	%	%	%	M USD	#
World	**73**	**57**	**75**	**58**	**?**	**56**	**21**	**19**	**57**	**59**	**1**	**8496**	**2**
Land Locked Developing Countries	**37**	**32**	**36**	**21**	**?**	**73**	**4**	**?**	**53**	**?**	**3**	**1854**	**?**
Malawi	18	46	15	6	?	75	6	18	58	61	-2	102	0
Mali	?	16	17	6	?	70	2	8	53	75	7	69	3
Mongolia	39	66	86	26	?	?	23	3	57	100	-1	51	0
Nepal	16	51	64	39	?	?	3	8	37	5	-1	140	0
Niger	?	8	25	9	?	80	3	11	52	86	1	168	0
North Macedonia	80	12	100	5	?	72	6	38	39	13	0	11	?
Paraguay	64	55	80	25	?	72	15	2	35	51	0	6	0
Republic of Moldova	75	?	87	46	?	?	9	13	68	100	-1	23	0
Rwanda	?	?	18	?	?	78	14	20	68	100	1	57	2
South Sudan	?	?	6	?	?	100	9	4	43	56	-5	30	0
Tajikistan	55	?	73	?	?	?	1	70	54	?	2	99	0
Turkmenistan	95	?	100	?	?	?	2	135	68	?	3	0	6
Uganda	19	18	31	4	?	84	41	6	57	99	2	115	6
Uzbekistan	80	75	82	32	?	?	3	122	52	70	-9	114	1
Zambia	?	?	18	?	?	86	14	3	66	78	0	117	5
Zimbabwe	27	32	42	55	?	81	4	46	63	90	-2	14	3

UN WATER INTEGRATED MONITORING INITIATIVE FOR SDG 6

Data as of 10/06/2025

The two slides present a comprehensive, disaggregated view of how LLDCs are performing across each of the 13 global SDG 6 indicators. This country-level snapshot provides critical insights into both progress and persistent bottlenecks across the LLDC group.

a. Basic Services (6.1.1 – Drinking Water & 6.2.1a – Sanitation)

The LLDC average for safely managed drinking water (6.1.1) stands at 37%, significantly below the global average of 73%. A few countries, however, stand out for strong performance: Turkmenistan (95%), Uzbekistan (80%), Kazakhstan (89%), and Armenia (82%) are at or near global levels. In contrast, countries such as South Sudan (7%), Mali (16%), Nepal (16%), and Chad (6%) remain far below minimum thresholds.

For sanitation (6.2.1a), the LLDC average is just 32%. Again, well under the global benchmark of 57%. Notable performers include Uzbekistan (75%), Kyrgyzstan (93%), and Azerbaijan (69%). However, Burkina Faso (10%), Chad (11%), and Central African Republic (13%) continue to face very low access levels.

b. Wastewater Treatment (6.3.1d & 6.3.1i)

Indicator 6.3.1d (domestic wastewater) shows that most countries cluster at the low to medium-low level. Only a few report higher levels of treatment: Uzbekistan (82%), Moldova (87%), and Kazakhstan (99%). In contrast, countries such as Afghanistan, Ethiopia, and Chad show less than 10% treatment levels.

The picture is worse for 6.3.1i (industrial wastewater), where data availability is extremely limited. The majority of LLDCs are marked “no data,” rendering a comprehensive comparison difficult. This reflects a significant monitoring and reporting gap on industrial pollution, a critical issue for sustainable development.

c. Water Quality (6.3.2)

Encouragingly, water quality (6.3.2) appears to be one of the strongest areas for LLDCs, with a group average of 73% (above the global average of 56%). Countries such as Burundi, South Sudan, Rwanda, Kyrgyzstan, and Lao PDR report 100% of monitored water bodies in good quality, while others like Zimbabwe (81%) and Zambia (86%) also perform well. However, a few countries, namely Kazakhstan (49%), Azerbaijan (57%), and Bolivia (56%), sit closer to the mid-range.

d. Water-Use Efficiency (6.4.1)

Water-use efficiency remains a major weakness across the LLDC group. The average economic value generated per cubic meter of water is only USD 4, compared to USD 21 globally. Just a handful of countries, namely Botswana (USD 66/m³), Zambia (USD 86/m³), Burundi (USD 100/m³), and Uganda (USD 84/m³), report efficiency levels above global norms. Conversely, many LLDCs remain below USD 10/m³, reflecting inefficient resource use, especially in agriculture.

e. IWRM and Transboundary Cooperation (6.5.1 & 6.5.2)

Data on IWRM (6.5.1) shows moderate progress, with an LLDC average of 53% implementation. Countries such as Uzbekistan (52%), Kazakhstan (51%), and Zambia (66%) are on track. However, many countries such as Chad (38%), Nepal (37%), and South Sudan (43%) reflect slower uptake of integrated approaches.

On transboundary cooperation (6.5.2), data availability is inconsistent. Where data exists, countries like Botswana, Kazakhstan, and Zambia report high levels of operational arrangements. However, several countries still show “no data” or low coverage, pointing to a need for more robust regional frameworks.

f. Ecosystems (6.6.1)

Water-related ecosystems (6.6.1) show mixed trends. Several countries report 0% change, suggesting neutral or stable conditions. However, Eswatini (-30%), Botswana (-26%), and Bolivia (-18%) report negative trends in the extent or quality of their water-related ecosystems.

g. International Cooperation & Participation (6.a.1 & 6.b.1)

All LLDCs report receipt of water- and sanitation-related ODA (6.a.1). Standouts include Ethiopia (USD 266M), Uganda (USD 115M), Uzbekistan (USD 114M), and Bolivia (USD

123M). However, several countries receive very modest amounts (e.g., Chad, CAR, Zimbabwe), raising questions about alignment between needs and financing flows.

On local participation (6.b.1), reporting is more variable. Some countries like Kyrgyzstan, Lesotho, and Uganda show strong engagement (scoring 6/6), while others like Bolivia, Botswana, and Chad report minimal or no community participation.

These last two slides reinforce the uneven landscape of SDG 6 implementation across LLDCs. While countries like Uzbekistan, Kazakhstan, Kyrgyzstan, and Moldova demonstrate strong, multi-indicator progress, others, including Chad, Central African Republic, and South Sudan, face multi-dimensional challenges across basic services, efficiency, and governance. The lack of consistent data for several indicators, especially on industrial wastewater and transboundary water management, further complicates efforts to track and accelerate progress.

2. Reframing Water as a Climate Investment: Financing Solutions for SIDS and LLDCs

On Monday, June 30th, at the 4th International Conference on Financing for Development (FfD4) in Sevilla, Spain, UN-DESA convened a side event to highlight the pressing funding gaps and showcase climate finance as a promising pathway for a coordinated response to pressing water challenges. Organized with support from the Government of Germany, the Green Climate Fund (GCF), and UN-Water, *"Financing Water Flows: How to Leverage Opportunities for SIDS and LLDCs"* spotlighted a critical reality: while water is central to health, resilience, and stability, it remains underfunded relative to its cross-cutting importance. In SIDS and LLDCs, overall progress remains particularly fragile, despite positive trends in some indicators, due to persistent financing gaps, weak infrastructure, and institutional bottlenecks.

Participants in this session discussed the systemic barriers that LLDCs and SIDS face in accessing water finance, and explored why climate finance may hold the key to unlocking progress.

"Water is not just a development issue. It is climate action."
- Charles Ehrhart, Green Climate Fund

2.1 A Convergence of Crises, and a Path Forward

"Achieving SDG 6 is no longer just about infrastructure," emphasized Yosuke Tomizawa of UN-DESA. "It's about building adaptive systems that can absorb shocks, attract

finance, and deliver long-term resilience." He referenced two new UN-DESA studies on Landlocked Developing Countries (LLDCs) and Small Island Developing States (SIDS), which underscore the widening gap between SDG 6 targets and countries' ability to implement them. In response, Mr. Tomizawa introduced the SDG 6 Capacity Development Initiative (CDI): a collaborative platform designed to support countries in strengthening institutional coordination, investment planning, and monitoring systems. Rather than isolated pilot projects or ad hoc interventions, the CDI aims to help governments build long-term, fundable national strategies, positioning water not merely as an infrastructure cost, but as a strategic lever for resilience, development, and climate adaptation.

2.2 Climate Finance: An Untapped Pipeline

Charles Ehrhart of the Green Climate Fund (GCF) addressed the persistent perception that water is "too hard to finance," and directly challenged it. "The barriers to financing water are real," he acknowledged, "but they are surmountable." He identified key constraints: weak cost recovery models, inadequate enabling environments, poor-quality data, and a lack of coordination across water, climate, and finance sectors. Yet these are not reasons for inaction: instead, they are precisely where climate finance can intervene.

Mr. Ehrhart explained how the GCF is deploying a range of financial instruments, notably, grants, concessional loans, guarantees, and equity, to help de-risk water investments and make them bankable, particularly in vulnerable contexts. He stressed that GCF is not only funding projects with proven systems but also investing in the capacity to build those systems, including better data, integrated planning, and institutional reform.

Citing case examples from Latin America and Africa, he emphasized the global relevance of this approach: when water solutions reduce vulnerability to droughts, floods, and resource conflict, they are inherently climate-relevant.

2.3 The LLDC Challenge: Capacity, Coordination, Credibility

The panel underscored that for Landlocked Developing Countries (LLDCs), the central challenge is not just accessing finance, it is building the systems required to use it effectively. As Marisha Wojciechowska, lead author of the UN-DESA study on LLDCs, noted, "Many LLDCs depend almost entirely on external funding for water. But without strong national systems, even the best-designed projects struggle to scale." The data underpinning the study reinforced this: progress is possible, but remains fragmented and vulnerable where institutional readiness is low.

Lesley Pories of WaterAid expanded on this, describing how structural weaknesses in planning and coordination undermine delivery at the local level. "Ministries aren't talking to each other, financial forecasting is weak, and the climate rationale behind water investments is often unclear," she explained. Beyond capital expenditure, she emphasized the need for long-term operational and institutional support. Countries need not only more funding, but the capability to plan, absorb, and sustain it.

From the perspective of SIDS, Dennis Zulu, UN Resident Coordinator for the Caribbean, added that even middle-income island states lack fiscal space to respond to compounding shocks. “We need blended financing models that allow countries to access resources while managing risk,” he urged, reminding participants that vulnerability is not limited to low-income countries.

From Central Asia, Ilkhom Makhmadiev, representing the Republic of Tajikistan, offered a direct national lens into the layered water challenges of mountainous LLDCs. He spoke of accelerated glacial melt, increased flood risk, and the resulting strain on national water systems. Tajikistan’s approach has been both technical and diplomatic; investing in infrastructure while also convening international water diplomacy efforts, such as the Dushanbe Water Decade Conference and the 2023 UN Water Conference. “Accessing climate finance,” he noted, “remains a challenge, but it is essential if we are to meet the scale of the risk.” His message was clear: for LLDCs like Tajikistan, climate change is not abstract: it is reshaping rivers, glaciers, and communities in real time.

Charles Ehrhart of the Green Climate Fund addressed the persistent perception that water is “too difficult to finance”, and directly countered it. While acknowledging real barriers such as poor cost recovery, weak enabling environments, and low-quality data, he emphasized that these are precisely the conditions where climate finance can make a difference. Through instruments like grants, loans, guarantees, and equity, the GCF is helping de-risk water investments and link them to measurable adaptation outcomes. “Water systems are adaptation systems,” he said. “They protect people, livelihoods, and ecosystems. That’s the value proposition for climate finance.”

This message was echoed by Yosuke Tomizawa of UN-DESA, who called for a strategic reframing: “If we continue treating water separately from climate, we’ll miss the moment. But if we link them strategically, water becomes one of our strongest levers for resilient development.” He introduced the SDG 6 Capacity Development Initiative as a platform designed to help countries move from fragmented efforts to integrated, fundable systems: strengthening investment planning, institutional coordination, and data capacities.

2.4 A Toward Systemic Readiness: From Diagnosis to Delivery

One clear thread ran through every intervention: the need to move beyond disconnected, short-term projects toward systemic readiness. This includes not only strengthening inter-ministerial coordination and improving data systems, but also translating water needs into the language of climate finance, with clear, bankable proposals aligned to national goals.

The SDG 6 Capacity Development Initiative, introduced during the panel, was positioned as a concrete mechanism to help countries make this shift. It supports governments in moving from diagnosis to delivery, helping convert policy ambition into credible pipelines that can attract and absorb funding from climate and development finance sources alike.

The event reinforced a broader truth: for LLDCs and SIDS alike, water insecurity is no longer simply a development issue; it is a climate vulnerability multiplier. Without

sustained investments in water systems, countries face rising risks of drought, displacement, and social fragility.

3. Pressing Challenges and Needs

This section distills the core messages emerging from the data analysis and policy dialogues presented in this study. It highlights the structural challenges and opportunities facing LLDCs in their pursuit of SDG 6.

3.1 Progress Exists, but is Fragmented and Uneven

This report demonstrates that progress on SDG 6 among LLDCs is uneven. According to the most recent UN-Water dataset, 53% of LLDCs report improvement on more than half of their water and sanitation indicators, outperforming the global average of 36%. Progress is visible in select areas, including ambient water quality (6.3.2) and integrated water resources management (6.5.1), where a number of LLDCs report positive trends. Some countries have also demonstrated improvements in local participation (6.b.1). However, overall performance remains uneven: 67% of LLDCs score poorly on community engagement, and IWRM implementation levels suggest that many countries still lack strong cross-sectoral coordination mechanisms, highlighting the gap between isolated progress and the systemic shifts required for sustainable implementation.

These systemic gaps are further compounded by persistent service and data deficits. Despite the progress, service coverage remains critically low across the group: only 37% of the LLDC population has access to safely managed drinking water (compared to a global average of 73%), and 32% have access to safely managed sanitation (compared to 57%). Moreover, critical data gaps persist, particularly in wastewater treatment, industrial pollution monitoring, and transboundary water governance, creating blind spots that hinder the ability to assess progress and inform targeted interventions. These findings underscore the importance of accelerating efforts where progress is evident, while addressing the deep structural constraints that continue to hold many LLDCs back.

3.2 Uneven Progress Across Regions: A Mixed but Revealing Picture

Among the top-performing LLDCs, countries such as Bhutan, Rwanda, Uzbekistan, Kazakhstan, and Moldova stand out. These countries report higher levels of access to safely managed drinking water and sanitation, as well as stronger performance in wastewater treatment, water-use efficiency, and IWRM implementation.

In contrast, Central African LLDCs, including Chad, Mali, and the Central African Republic, face severe capacity constraints, with widespread data gaps, negative trends across sanitation and wastewater indicators, and minimal target achievement. Southern African LLDCs display mixed performance, with countries such as Botswana and Zambia

achieving progress on several indicators, while others, such as Zimbabwe and Lesotho, report more negative trends and limited capacity to scale results.

This contrast underscores a central insight: acceleration is not only possible, it is already underway in countries where enabling systems are in place**.** The divergence in performance across regions reveals that progress depends less on geography and more on governance capacity, institutional coordination, and sustained investment**.** Where countries have developed coherent national strategies, invested in monitoring and service delivery systems, and aligned water priorities with climate and development goals, gains are measurable. Conversely, where institutional systems remain weak or underdeveloped, as seen in several Central African LLDCs, progress stalls, even in the presence of substantial external support. This pattern, reflected in the UN-Water dataset and highlighted by panelists at the FfD4 side-event, underscores that without national coordination, planning, and delivery mechanisms, aid alone is insufficient to drive sustainable results.

3.3 Aligning Water with Climate Priorities to Unlock Financing

As highlighted during the 2025 FfD4 side-event, water is not only a development priority, it is also a frontline climate adaptation strategy. In LLDCs, where exposure to floods, droughts, glacial retreat, and water scarcity is intensifying, water systems serve as critical infrastructure for resilience.

Yet, despite their climate relevance, water-related investments remain underrepresented in climate finance flows. Many LLDCs have not adequately integrated water into National Adaptation Plans (NAPs), Nationally Determined Contributions (NDCs), or investment strategies. At the same time, readiness remains a key barrier: without bankable projects, strong governance frameworks, and robust data systems, LLDCs are unable to access or absorb climate finance at the scale required.

The FfD4 side-event emphasized that climate finance actors must broaden their definitions of climate relevance to include water investments that deliver measurable adaptation outcomes. Platforms such as the SDG 6 Capacity Development Initiative and UN-Water mechanisms can support LLDCs in aligning institutional frameworks, translating needs into credible project pipelines, and ensuring water is positioned as both a development and climate priority.

3.4 Lessons from Bhutan and Rwanda: Country Acceleration Insights

As part of its ongoing effort to identify and replicate enabling conditions for SDG 6 progress, UN-Water has been producing annual Country Acceleration Case Studies. In 2025, two LLDCs were selected countries namely, Bhutan and Rwanda, which offer particularly relevant insights for this report.

While the country contexts differ, both case studies provide grounded, system-level lessons on what has worked to accelerate SDG 6 implementation in LLDC settings. The

findings reinforce many of the challenges and priorities identified in this report, while offering tangible examples of how progress can be achieved and sustained.

Bhutan

Bhutan's experience highlights how long-term political commitment, combined with progressive implementation and strong local engagement, can yield rapid improvement in service access, even in mountainous, rural terrain.

Key lessons from Bhutan include:

- Water prioritized at the highest levels: Bhutan has made water a national development priority for over three decades, anchored in both legislation and national planning frameworks.
- Progressive, data-informed implementation: Major programmes such as the Rural Sanitation and Hygiene Programme and the Water Flagship Programme were rolled out in phases, using piloting and feedback loops to build capacity before scaling.
- Decentralized service delivery: Local authorities play a lead role in water governance and maintenance, supported by community water caretakers and cost-sharing models.
- Low-subsidy, high-ownership sanitation model: Significant gains in sanitation were achieved without household subsidies, using behavioural change and market-based solutions.
- Operational data systems: Every district has a water testing facility, and the data is used to identify drying sources and prioritize investment, including for spring revival and watershed protection.

Rwanda

Rwanda's case illustrates the impact of strong intersectoral coordination, performance-based planning, and a deliberate focus on IWRM at all levels.

Key lessons from Rwanda include:

- Interministerial coordination under high-level leadership: Water governance was elevated to the Office of the Prime Minister, enabling integration across WASH, irrigation, hydropower, and climate planning.
- Combined IWRM and WASH policy: Rwanda's 2023 National Water and Sanitation Policy unifies these domains, reflecting the country's understanding that catchment management is essential for infrastructure resilience.
- Use of data and modelling for planning: Rwanda has developed catchment models, online permitting systems, and spatial databases that directly inform investment planning and regulatory enforcement.

- Decentralized performance culture: National water targets are translated into district-level objectives and tracked annually through Rwanda's "Imihigo" performance framework.
- Commitment to transboundary cooperation: Rwanda is one of the few countries globally to report 100% of its transboundary waters under operational arrangements (SDG 6.5.2).

These two case studies reaffirm that LLDCs can achieve accelerated SDG 6 implementation where there is sustained political commitment, institutional alignment, and a willingness to invest in national systems and local capacity. The experiences of Bhutan and Rwanda demonstrate that strategic, systemic approaches, anchored in national ownership, can deliver meaningful results.

4. Implications for Policy and Action: Water as a Lever for Resilience in LLDCs

This section synthesizes the implications of the findings in this report. For LLDCs, where progress on SDG 6 is both possible and urgently needed, the path forward depends not only on financing, but on national readiness, institutional coherence, and the strategic integration of water into climate and development agendas.

4.1 Persistent Challenges

The evidence presented in this report points to five core, persistent challenges facing LLDCs in their efforts to implement SDG 6:

- Low service coverage: LLDCs remain critically far below global averages on safely managed drinking water (37% vs. 73%) and sanitation services (32% vs. 57%). Progress has occurred, but remains fragile and uneven, especially in Central and Southern Africa.
- Chronic data gaps: 20% of the SDG 6 global indicators have no data in LLDCs; more than double the global average. Seven of 13 indicators lack trend data in over half of countries, making it difficult to assess where support is most needed.
- Wastewater and water-use inefficiencies: 91% of reporting LLDCs treat only a low proportion of domestic wastewater. Industrial wastewater data are almost absent, and water productivity remains critically low (USD 4/m³ vs. USD 21/m³ global average).
- Weak local participation and institutional coordination: 67% of LLDCs report poor scores on community participation. Many countries also lack formal platforms for interministerial coordination, undermining implementation and coherence.
- Barriers to financing readiness: While external support exists, LLDCs often struggle to absorb funding due to fragmented project structures, lack of bankable

pipelines, and weak integration between national priorities and climate finance mechanisms.

4.2 Glimpses of Momentum: Where Progress Is Taking Root

Despite persistent challenges, this report identifies several areas where meaningful progress is taking shape across LLDCs:

- **Positive momentum in system-ready countries**
  Over half of LLDCs report improvement on more than half of their SDG 6 indicators. Countries such as Bhutan, Rwanda, Uzbekistan, and Kazakhstan show that measurable gains are possible where national plans, institutional coherence, and monitoring systems are in place.
- **Regional bright spots**
  LLDCs in lowland and endorheic basins are showing multi-indicator improvement trends. These cases point to opportunities for peer learning, particularly where natural water scarcity has catalyzed integrated management approaches.
- **Water as a climate finance entry point**
  The 2025 FfD4 side-event reinforced that when framed as climate adaptation, water-related investments become eligible for a broader suite of financing mechanisms. The SDG 6 Capacity Development Initiative (CDI) was introduced as a tool to support this shift, by helping countries move from policy ambition to investment-ready proposals.
- **Institutional traction**
  Many LLDCs are strengthening Integrated IWRM and transboundary cooperation frameworks, signaling growing institutional maturity, even where infrastructure gaps remain.
- **Proven models within the LLDC group**
  Bhutan and Rwanda demonstrate that when countries commit to long-term planning, decentralized governance, data-informed delivery, and high-level coordination, real acceleration is possible, even in challenging geographic contexts.

4.3 Call to Action

The findings in this report confirm LLDCs can accelerate progress on SDG 6, but only if structural bottlenecks are addressed and systems are strengthened to absorb and deploy support at scale.

This is a question of readiness.

Water must be treated not just as a service, but as a strategic enabler of development, resilience, and climate adaptation. Integrating SDG 6 into national planning, institutional

reform, and climate finance is not only urgent: it is possible, as demonstrated by the country experiences of Bhutan and Rwanda.

To support this shift, the SDG 6 Capacity Development Initiative (CDI), presented at the FfD4 side-event, offers a timely and scalable mechanism. The CDI is designed to help countries move from diagnosis to delivery, supporting national governments in converting needs into actionable investment plans, strengthening institutional coordination, and unlocking both domestic and international finance for water.

The path forward requires more than additional resources: it requires bold alignment across national plans, financing frameworks, and institutional capacity. With climate risks intensifying and service gaps widening, the imperative is clear: LLDCs cannot be left behind, and water must no longer be treated as marginal. It is central to resilience.

5. Headlines from This Study

Urgent Call for Action: Advancing Water Security and SDG 6 Implementation in Landlocked Developing Countries

- LLDCs Face a Double Vulnerability: Geography and Climate Risk
Landlocked geography inherently limits access to water sources, while climate change accelerates volatility through floods, droughts, glacial retreat, and shifting rainfall. Water insecurity threatens resilience, food systems, and development stability across LLDCs.

- Progress Is Possible - and Already Happening in Some LLDCs
53% of LLDCs report improvement on more than half of their SDG 6 indicators, outperforming the global average. Countries such as Bhutan, Rwanda, Uzbekistan, and Kazakhstan show that sustained progress is achievable where systems and coordination are in place.

- Data Gaps Undermine Planning, Financing, and Accountability
LLDCs report no data for 20% of SDG 6 indicators, more than twice the global average. Industrial wastewater and transboundary cooperation indicators remain severely underreported, limiting evidence-based policy and investment planning.

- Service Coverage Remains Alarmingly Low
Only 37% of the LLDC population has access to safely managed drinking water, and just 32% to safely managed sanitation, well below global benchmarks. Wastewater treatment remains minimal in most countries, with 91% reporting low levels of treatment.

- Integrating Water into Climate Finance Is a Major Untapped Opportunity
Water is a natural entry point for climate adaptation, but in most LLDCs, it remains underrepresented in National Adaptation Plans (NAPs) and climate finance proposals. By strategically embedding SDG 6 priorities into climate frameworks, LLDCs can unlock new

financing streams, improve resilience, and align development with climate goals. Mechanisms like the SDG 6 Capacity Development Initiative (CDI) can help bridge the gap between water needs and climate funding readiness.

- Regional Inequalities Are Stark
Lowland and endorheic basin LLDCs are making significant progress, while Central and Southern African LLDCs face persistent setbacks. Tailored support is essential to close this gap and ensure equitable advancement.

- Local Participation and Institutional Coordination Are Weak Links
67% of LLDCs score poorly on community participation in water governance. Many lack cross-sectoral coordination platforms, impeding implementation of integrated water strategies.

- National Systems, Not Standalone Projects, Are the Key to Scale
The shift from fragmented, donor-led efforts to coherent national investment plans is critical. Bhutan and Rwanda demonstrate how integrated, data-informed, and locally grounded systems can deliver real acceleration across multiple indicators.

- The SDG 6 Capacity Development Initiative Can Bridge the Readiness Gap
Presented at the 2025 FfD4 side-event, the CDI offers a scalable mechanism to help LLDCs translate national needs into investment-ready plans. It supports cross-ministerial coordination, institutional strengthening, and access to climate finance.

- Water Is a Strategic Lever for Resilience, and Must Be Treated as Such
SDG 6 is not just a service delivery goal in LLDCs; it is a foundation for adaptation, peace, and development. With the right support and systems in place, water can become one of the most powerful accelerators of resilience and inclusive progress across the LLDC group.

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