Report on the results of KDDI's nature disclosure project

KDDI CORPORATION

Sustainability Planning Department

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Based on telecommunications, we expand our business from the personal domain to the business domain globally, promoting our mid-term management strategy of 'Sustainability Management'.

Personal Services Segment

- Consumer telecommunications business
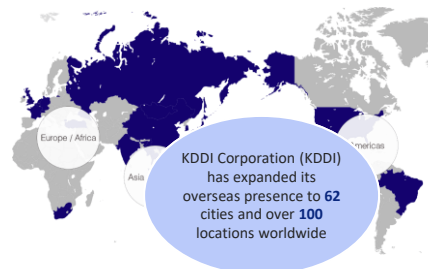- Life design business

au   UQ mobile   povo

Business Services Segment

- Consumer telecommunications & IT services business
- IoT & DX solutions

WAKONX

Global Segment

- ICT business & data center business
- Overseas telecommunications business (Myanmar/Mongolia)

TELEHOUSE

KDDI Corporation (KDDI) has expanded its overseas presence to **62** cities and over **100** locations worldwide

Outline of Mid-Term Management Strategy

The KDDI Group Mission Statement

Brand Message Company Vision

KDDI VISION 2030

Mid-Term Management Strategy
— Sustainability Management —

Business Strategy (Satellite Growth Strategy) | Strengthening of Management (Non financial)

Philosophy

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As part of our sustainability management, we recognize 'environmental value' as a key issue and promote our business accordingly.

KDDI GREEN PLAN
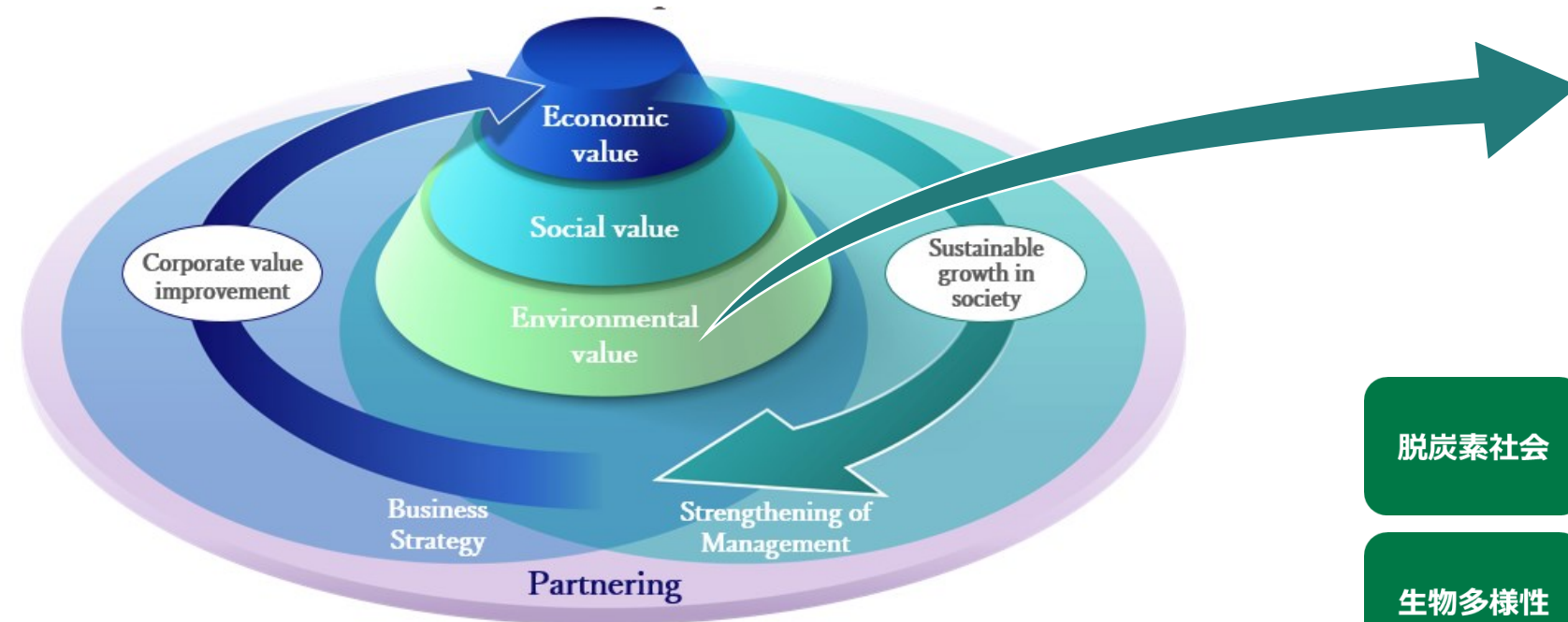
脱炭素社会	攻め	DX・LX事業を通じた社会の脱炭素推進 再エネ創出
	守り	KDDI事業のCO2排出量の削減
生物多様性	攻め	通信技術による生物多様性の可視化・回復
	守り	事業を通じた生態系影響の抑制
循環型社会	攻め	通信・再エネによる循環型社会への貢献
	守り	事業活動の資源リサイクル追及

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Why is KDDI Committed to Nature Positive Initiatives?

KDDI's telecommunications business is supported by natural capital, and telecommunication technology has the potential to contribute to being nature positive.

Telecommunications Business Related to Nature

Telecommunication business

Entry of personnel for the construction and maintenance of communication base stations in natural environments.

Value chains

The metals used as raw materials for smartphones are extracted from mines.

Telecommunication Technologies Contributing to Nature Positive

IoT

By detecting and recording the organisms that inhabit the area, we collect ecological data that needs to be protected.

Drones

Drones can capture images of forests and land from above, allowing for a comprehensive understanding of the situation over a wide area.

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We are installing telecommunications infrastructure with consideration for the natural environment.

Initiatives to Protect Terrestrial Environments "Yakushima Island"

The base stations use electricity generated from hydroelectric power.

Construction with consideration for the landscape.

(Miniaturization of base stations, with cables routed through trenches for installation)

We minimize the impact on the environment.

(Installed cables using existing power lines and utility poles)

Initiatives to Protect Marine Environments "Submarine cable"

Designing cable routes to avoid coral reefs

Construction scheduled to avoid the sea turtle nesting season

Published the TNFD report in 2023

The first telecommunications operator in Japan to disclose the final recommendations of TNFD (December 2023)
On the other hand, the lack of response to the recommended disclosure item 'scenario analysis' remains a challenge

TNFD Report of KDDI

Updated on Mar.28

KDDI Corporation
TNFD Report 2023 v2

- The Challenge towards Nature-Positive Through the Power to Connect -

TNFD
Taskforce on Nature-related Financial Disclosures

Background

June 2023 — Referring to version β0.4 of TNFD, we conducted the analysis using the LEAP approach

December 2023 — Referring to version 1.0 of TNFD, we reflected the changes in the report and further analyzed the focal species

March 2024 — Based on the analysis results of the focal species, we conducted field surveys
We held dialogues regarding the TNFD report

September 2024 — **KDDI was selected for the Ministry of the Environment's model project for supporting nature disclosures**

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Overall processes involved in scenario analysis

**Conducted scenario analysis targeting KDDI's telecommunications business.
Identified the risks and opportunities of each scenario in a cross-departmental workshop and evaluated their impact on the company.**

Identify risks and opportunities

Evaluate impact/formulate solutions

(1) Define scenarios

(2) Conduct company-wide workshops

(3) Integrate nature and climate scenarios

Identify the scope and define the assumed scenarios for conducting the analysis.

Discuss the risks and opportunities of the telecommunications business in each scenario.

Develop measures and assess the impact on us regarding the identified risks and opportunities.

Integrate scenarios related to nature and climate change.

Quoted from TNFD's "Recommendations of the Taskforce on Nature-related Financial Disclosures"
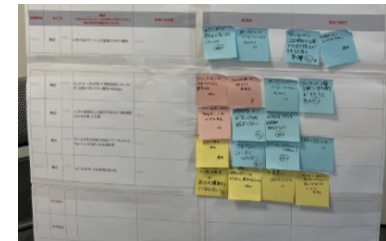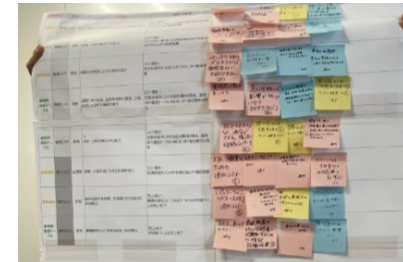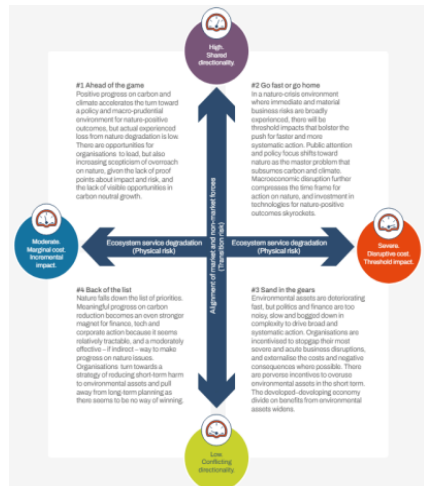
TNFD Taskforce on Nature-related Financial Disclosures
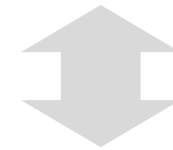
TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

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We identified and linked the key components of each scenario to the relevant aspects of KDDI's business operations. We then defined scenarios in a way that is easy to understand for internal divisions and employed them in company-wide workshops.

Source: TNFD framework
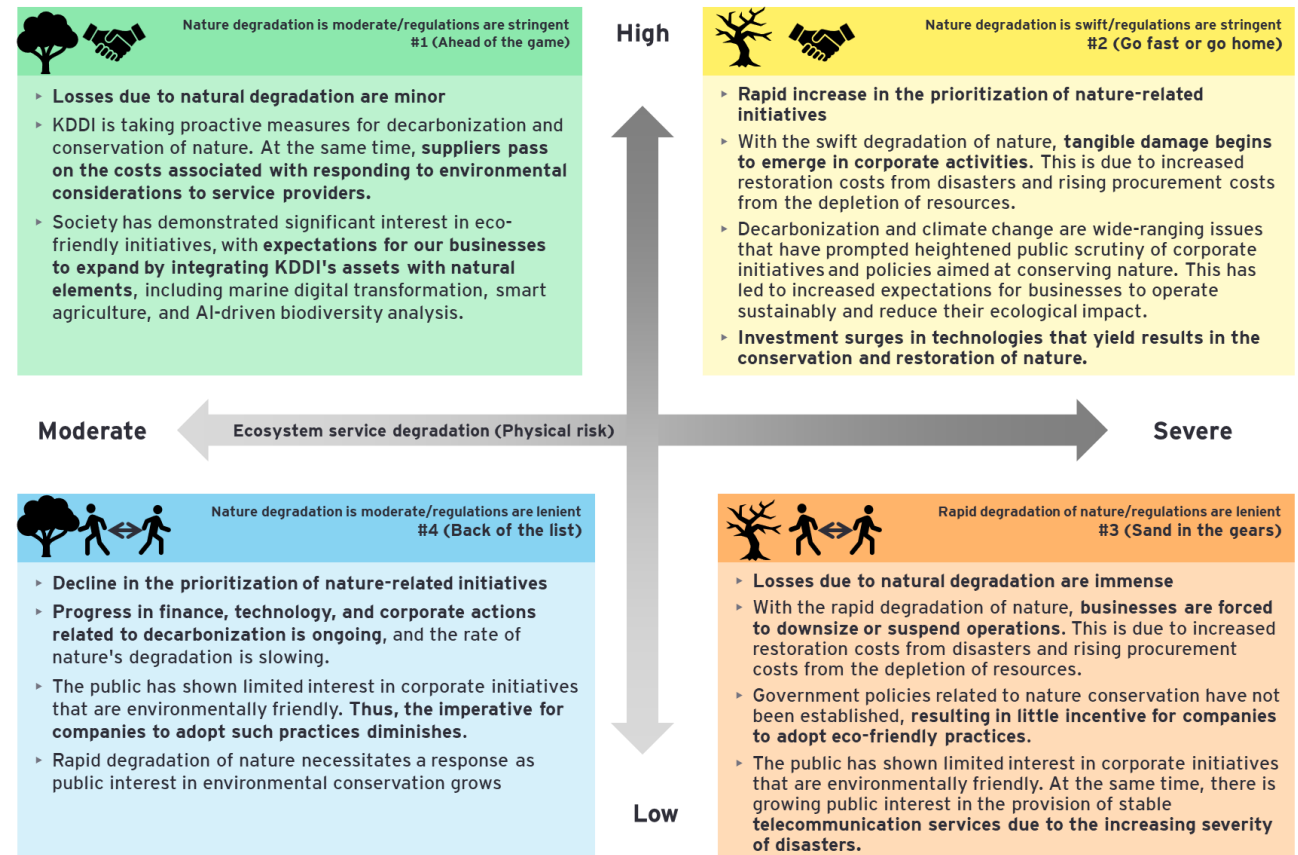
Guidance on scenario analysis is abstract and difficult to understand

Definitions set forth in KDDI report

Overview of scenarios issued by the TNFD

High

Nature degradation is moderate/regulations are stringent
#1 (Ahead of the game)

‣ **Losses due to natural degradation are minor**
‣ KDDI is taking proactive measures for decarbonization and conservation of nature. At the same time, **suppliers pass on the costs associated with responding to environmental considerations to service providers.**
‣ Society has demonstrated significant interest in eco-friendly initiatives, with **expectations for our businesses to expand by integrating KDDI's assets with natural elements,** including marine digital transformation, smart agriculture, and AI-driven biodiversity analysis.

Nature degradation is swift/regulations are stringent
#2 (Go fast or go home)

‣ **Rapid increase in the prioritization of nature-related initiatives**
‣ With the swift degradation of nature, **tangible damage begins to emerge in corporate activities.** This is due to increased restoration costs from disasters and rising procurement costs from the depletion of resources.
‣ Decarbonization and climate change are wide-ranging issues that have prompted heightened public scrutiny of corporate initiatives and policies aimed at conserving nature. This has led to increased expectations for businesses to operate sustainably and reduce their ecological impact.
‣ **Investment surges in technologies that yield results in the conservation and restoration of nature.**

Moderate ← Ecosystem service degradation (Physical risk) → **Severe**

Nature degradation is moderate/regulations are lenient
#4 (Back of the list)

‣ **Decline in the prioritization of nature-related initiatives**
‣ **Progress in finance, technology, and corporate actions related to decarbonization is ongoing,** and the rate of nature's degradation is slowing.
‣ The public has shown limited interest in corporate initiatives that are environmentally friendly. **Thus, the imperative for companies to adopt such practices diminishes.**
‣ Rapid degradation of nature necessitates a response as public interest in environmental conservation grows

Rapid degradation of nature/regulations are lenient
#3 (Sand in the gears)

‣ **Losses due to natural degradation are immense**
‣ With the rapid degradation of nature, **businesses are forced to downsize or suspend operations.** This is due to increased restoration costs from disasters and rising procurement costs from the depletion of resources.
‣ Government policies related to nature conservation have not been established, **resulting in little incentive for companies to adopt eco-friendly practices.**
‣ The public has shown limited interest in corporate initiatives that are environmentally friendly. At the same time, there is growing public interest in the provision of stable **telecommunication services due to the increasing severity of disasters.**

Low

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We conducted company-wide workshop to incorporate a wide range of perspectives. Proactively outline roles in technology, business, management, and corporate divisions to stimulate discussion.

Participating divisions: Engineering/Business divisions	
Participating divisions	**Role (provide feedback on the following matters)**
Engineering divisions	Reliance and impact of telecommunication base stations on nature
Research divisions	New developments in environmental technology
Solutions divisions	Construction and operation of data centers and their impact on nature
Regional co-creation divisions	New business and risks related to the conservation of local nature

Participating divisions: Management/Corporate divisions	
Participating divisions	**Role (provide feedback on the following matters)**
Management divisions	Potential business impact
Procurement divisions	Impact of environmental changes on supply chains and procurement
Accounting divisions	Potential impact on earnings and financial implications
Sustainability divisions	Provide feedback on how to balance nature conservation with business operations

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We integrated the four scenarios of natural capital with those of climate change, taking into consideration the business impact on KDDI and alignment with TCFD

TNFD: Natural capital scenarios

In scenario I, we envision a world where nature degradation is moderate, and a framework of regulations dedicated to the preservation of nature is being established.

In scenario III, we envision a world where natural degradation occurs rapidly and regulations concerning the conservation of nature are lenient.

TCFD: Climate change scenarios

In the 1.5°C scenario, we envision a world in which a carbon free society will be rapidly realized.

In the 4°C scenario, we envision a world in which physical impact will become apparent due to lack of measures against climate change.

Key takeaways from our analysis: Scenario analysis (risk considerations)

Scenario III (where natural degradation occurs rapidly but no regulations related to nature are implemented) would have a significant impact on our business, particularly in the areas of communication infrastructure and devices.

Major affects	Impact on KDDI's businesses		Key recommendations
	Scenario I (1.5°C scenario)	Scenario III (4°C scenario)	
Smartphones — Depletion of metal resources used in electronic devices	Low	Moderate	Recycle used mobile devices
Base stations — Increase in floods and landslides due to weaker forest disaster prevention capabilities. Increase in accidents at telecommunication base stations	Moderate	Significant	Base station installation with minimized environmental impact. Utilization of Starlink
Data centers — Depletion of water resources used for server cooling systems	Low	Moderate	Introduce water-saving infrastructure

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In response to environmental risks, KDDI will advance the recycling of mobile devices and develop communication infrastructure that minimizes environmental impact.

Smartphones

Recycle used devices

- Manual disassemble devices to recovery gold, silver and copper
- Aim to achieve a **99.8%** recycling rate

Base stations

Install base stations that minimize environmental impact

- Install cables using existing power lines and utility poles
- Develop areas by employing small-scale base stations and Starlink

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Both Scenario I and Scenario III feature potential business opportunities linked to nature.

Business areas	Impact on KDDI's businesses		Service overview
	Scenario I (1.5°C scenario)	Scenario III (4°C scenario)	
Business that identifies ecosystem services	Moderate	Moderate	Remote underwater photography by a sea-to-air drones Invasive alien species survey using a biological information visualization app
Regional revitalization business that contributes to preserving biodiversity	Low	Moderate	Demonstrate the feasibility of supporting pesticide-free agriculture through the utilization of IoT

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By utilizing satellite communication, drones, and IoT, we contribute to the visualization and conservation of biodiversity.

Identifying ecosystem services
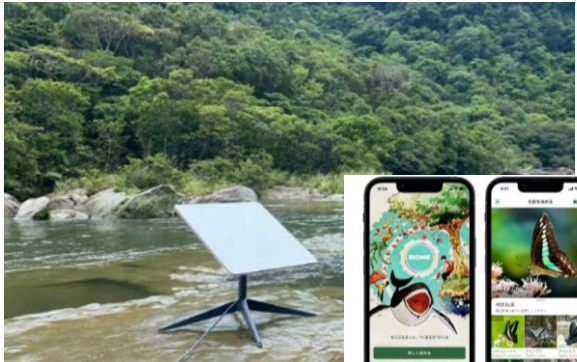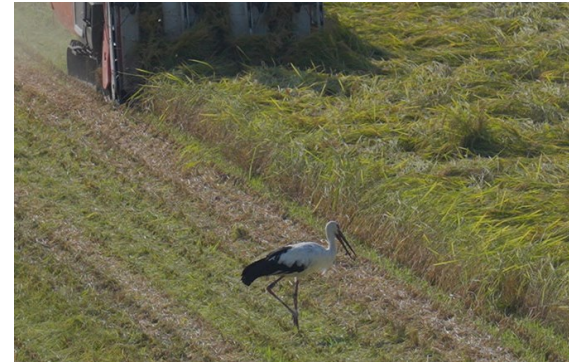

Satellite communications

Conduct invasive alien species survey using the biological information visualization app "Biome" and Starlink

Drones

Conduct remote underwater photography by a sea-to-air drones

Regional revitalization

IoT

Contribute to nurturing storks by demonstrating the feasibility of supporting pesticide-free agriculture through the utilization of IoT

IoT

Demonstrate the feasibility of developing oyster cultivation know-how using IoT sensors

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Scenario analysis enables us to forecast the long-term impact of the natural environment on KDDI, from perspectives of both risk and business opportunity.

Significance of Scenario analysis

Enables us to anticipate our own businesses from a **long-term perspective** and **take a holistic view of the entire value chain**

Long-term perspective X **Value chains**

Obtaining a holistic view of the value chain is a long-term endeavor.

Obtaining a holistic view cannot be done through KDDI's efforts alone.

Importance of risks and opportunities

In conducting business, it is important for KDDI to continually **strive to** minimize their environmental impact **while also seizing business opportunities**

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Through the "scenario analysis" tool, which allows us to gain a broad perspective, we anticipate that the expansion of biodiversity and environmental initiatives among many companies will lead to future opportunities for collaboration on new endeavors.

Opportunities for discussions with internal divisions

Using our scenario analysis, we will conduct discussions on biodiversity and the environment with **internal divisions**

Engineering & research divisions	Corporate planning divisions
Business divisions	Corporate divisions Sustainability divisions

Biodiversity, Decarbonized society & Circular economy

TNFD began with biodiversity guidelines, but it is also closely related to achieving a decarbonized society and a circular economy. We have come to realize the need to consider these goals in an integrated manner within our initiatives.

CO₂
脱炭素社会
循環型社会   生物多様性

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