

“Path Diversity” development policy in Kyrgyz and Aral Sea watershed

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2025 Apr 3

1. Summary

- ① Proposal: a development strategy based on watershed thinking for Central Asia as a whole, gathering capitals from world market, with reference to UK's biodiversity credits.
 - ② Ideas: that could be planned and implemented in Kyrgyz and Central Asia as projects to be included in the development strategy.
- Apply “watershed thinking”* throughout Central Asia including Kyrgyz.
 - A 'watershed' is defined as 'a landform that collects rainwater in a system', etc.
 - 'Watershed' is an important basic concept,
 - ✓ both in the area of global warming adaptation measures and in the area of biodiversity conservation,
 - ✓ and is an idea that could serve as a foundation for building a development model that will last for thousands of years to come, instead of a development model with risks to sustainability, such as a mass-production, mass-consumption and mass-wasting industrial society.
 - UK's Environment Act 2021 requires almost all development projects in England to increase biodiversity by 10% compared to pre-development levels.
 - Kyrgyz's watershed includes the five Central Asian countries (Uzbekistan, Kazakhstan, Kyrgyz, Tajikistan and Turkmenistan) and northern Afghanistan (and even the Tejen River basin in Iran).
 - Implement a social system that can combine diverse projects.
 - Projects: electricity distribution, forest utilisation, desertification prevention and others.
 - Collect funds directly from the whole world. Less debt and No domination.
 - Build a sustainable social system over the future.

*Cited by Kishi, Yuji. What is Watershed Thinking? A Collection of Discussions. Yasaka Shobo, 2024.

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2. Watershed

Know about the watershed

Watershed



Fig.1: Conceptual diagram of the watershed (prepared by the author).

- 'Watershed' is defined as
 - 'landforms where rainwater collects in a river/water system'
 - or 'landforms that convert rainwater into river water', etc.
- The concept is represented in Fig.1, where the 'watershed' is within the red dotted line area.

Aral Sea Watershed

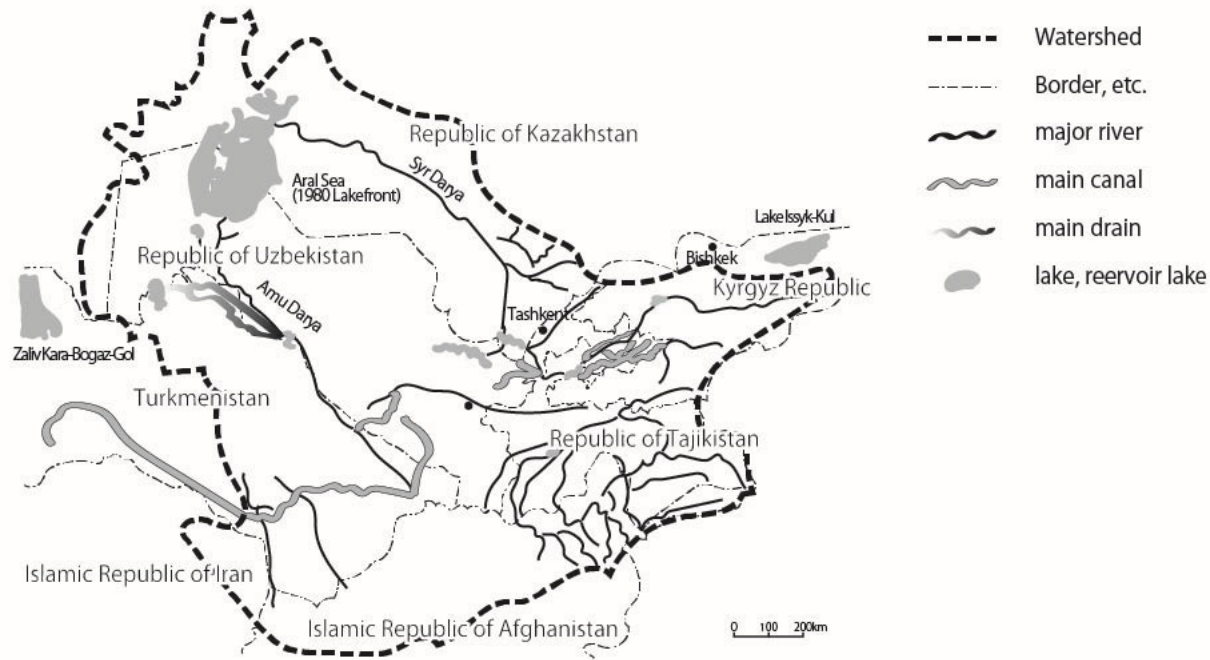


Fig.2: Aral Sea watershed (adapted from Tetsuro Jita, , prepared by the author).

- Aral Sea Watershed includes
 - the five Central Asian countries (Uzbekistan, Kazakhstan, Kyrgyz, Tajikistan and Turkmenistan),
 - northern Afghanistan (and also the Tejen River watershed in Iran)
- the watershed is bounded by different borders
- the upper reaches (Kyrgyz and Tajikistan) have provided agricultural water to the lower reaches (Kazakhstan, Uzbekistan and Turkmenistan) since Soviet times.
- Aral Sea watershed cooperation will go on.

Koajiro Watershed



Maeda, Mitsuhiro. "MIGA policy package "Path Diversity" for "No One Left Behind"". Global South Research Caucus. Thu, 14 Nov 2024 03:15:13 GMT.
<https://www.globalsouth.musashino-u.jp/en/miga-pp-2024-nov/#toc55>. (Accessed 2025-03-24)

- In 1970, after Koajiro Forest and the surrounding area were designated as an urbanisation area in the Miura Urban Plan, plans were made to develop a golf course there.
- In 1995, Kanagawa Prefecture presented the Miura City and the developer with a policy on the use of the forest, etc., and as a result of discussions, it was decided to preserve the Koajiro Forest.
- from 2011, walking paths and other facilities were developed, and the area was opened to the public in July 2014. Kanagawa .



Koajiro Forest walking path (photo by the author, 2025-03-14).

3. Biodiversity Credits

Raise capital

Aral Sea watershed bond

UK's Biodiversity Net Gain (BNG) policy

PRE-intervention biodiversity calculation (the baseline)

Size of habitat parcel	x	Distinctiveness	x	Condition	x	Strategic Significance	=	Biodiversity units
10 (ha)	x	6 (high)	x	1 (poor)	x	1.15 (high)	=	69 units

POST-intervention biodiversity calculation (for newly created habitat)

Size of habitat parcel	x	Distinctiveness	x	Condition	x	Strategic Significance	x	
10 (ha)	x	6 (high)	x	3 (good)	x	1.15 (high)	x	
		Difficulty	x	Time to target condition	x	Spatial risk	=	Biodiversity units
		0.67 (med)	x	0.837 (5 yrs)	x	1 (local)	=	116 units

Calculation of gains or losses

Habitat parcel	Risk factor
Measure of biodiversity quality	Value in biodiversity units

POST units	-	PRE units	=	Net change
116 units	-	69 units	=	+47 units

- In England, a target of a 10% net increase in biodiversity per project was enshrined in the Environment Act 2021.
- it requires developers to leave wildlife habitats better condition than they were before development.
- Developers must provide 10% BNG.
- BNG can be realized in the following order of priority:
 - (i) on-site,
 - (ii) off-site and
 - (iii) by purchasing biodiversity credits

Potential of BNG linked to the development of the Aral Sea watershed

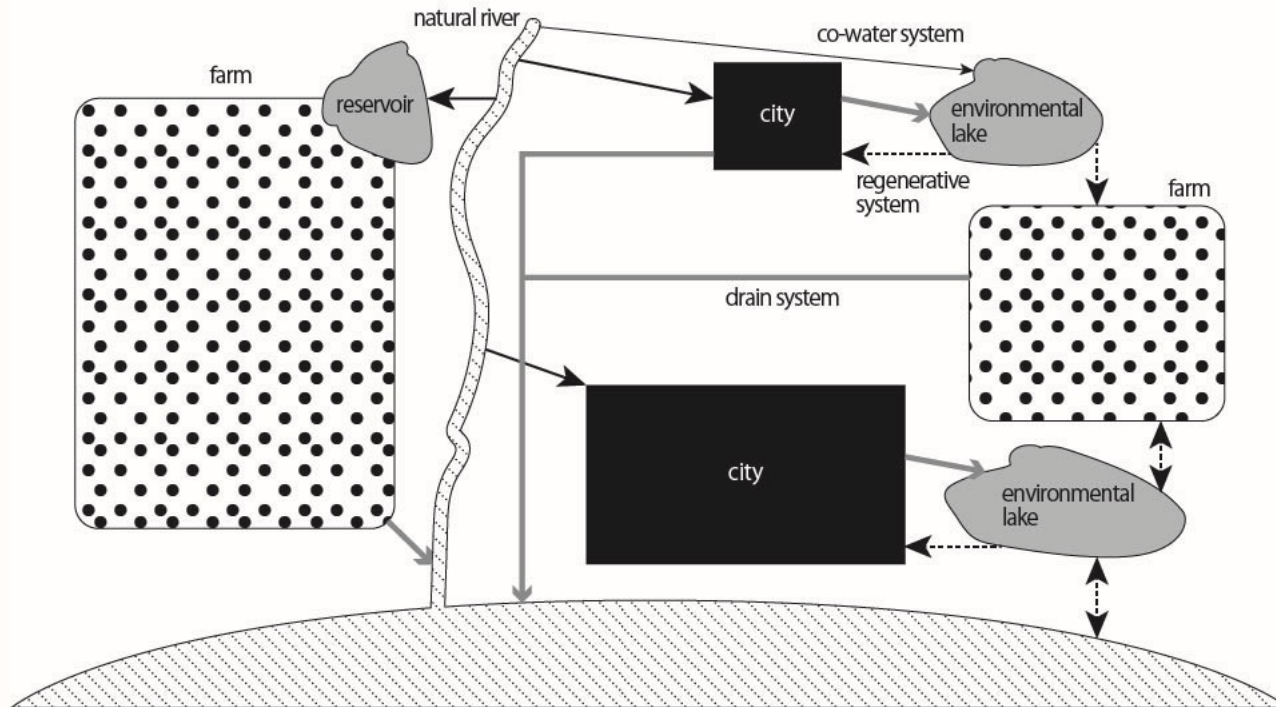


Fig. 3 "State-of-the-art" water system using environmental lakes
(adapted from Norihito Tmbo, prepared by the author).

- Water resource utilisation systems using environmental lakes and recycled water are not widespread in Japan and other countries.
- this "state-of-the-art" system can provide a solution to the problems
 - water resources
 - phosphorus depletion, the three major fertilisers for crops
 - loss of biodiversity
- improve the biodiversity
 - within the Aral Sea Watershed
 - developed countries such as the UK
- In case it is difficult to achieve the "30 by 30" target, a project portfolio bond in the Aral Sea Watershed could be purchased as BNG credit.

4. Project Bonds

Bond system

Project portfolio

Aral Sea Watershed Bond (tentative name)

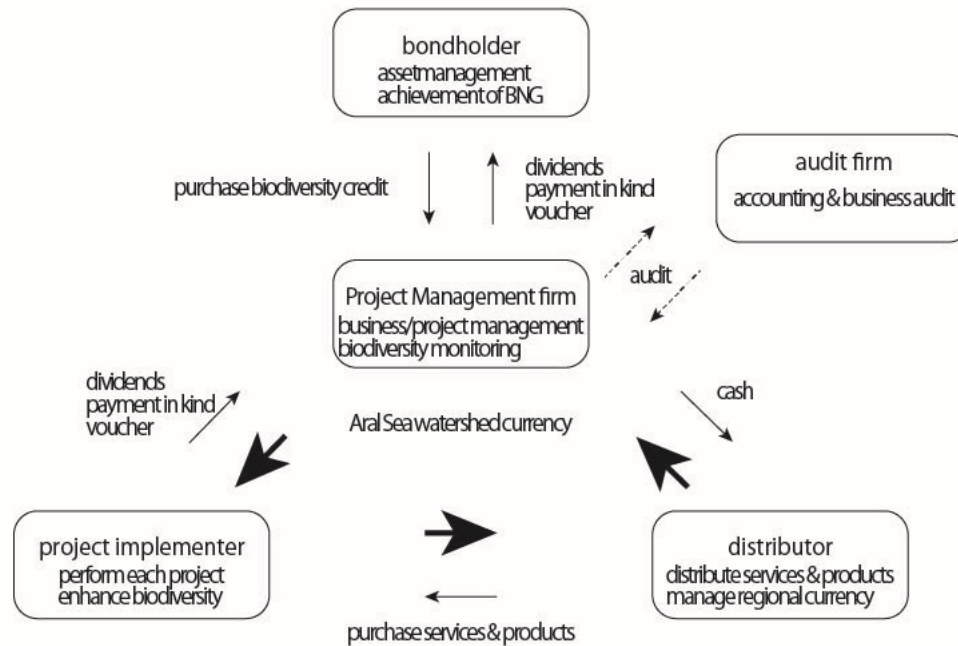


Figure 4 Biodiversity amplification bonds with Aral Sea Watershed Currency (prepared by the author with ref. to Nakamura & Ikeda).

- Aral Sea Watershed Bond (tentative name) 's features.
- ✓ Goods and services can be purchased with local currency within the Aral Sea watershed.
- ✓ Project proponents in the watershed focus on generating results from their own projects with no need to prepare an international currency
- ✓ Centralisation and efficiency of administrative tasks through the management of multiple projects by a PM company.
- ✓ Auditors audit the accounting and business reality based on records to ensure that the results of projects in the watershed are recorded accurately and without fraud.
- ✓ Distributors concurrently issue and manage local currency.
- ✓ Issuance of a local currency requires backing of an international currency.
- ✓ Linking the value measured in international currency to the increase or decrease in the local currency based on the results of project implementation.
- ✓ Dividends in local currency can be paid out to bondholders.
- ✓ Bond holders are free to acquire vouchers within the watershed backed by local currency, which can also be used within the watershed.
- ✓ Bond holders can resell project bonds to other investors, but are generally not allowed to request repurchase within the watershed.
- ✓ Financing instruments for long-term economic growth ensuring biodiversity in the Aral Sea Watershed.

Project portfolio

- Unlike single project (electricity plant) bond, Aral Sea Watershed Bond needs multiple project.
- The key to success of Aral Sea Watershed Bond is project management. project planning, persona setting and risk management need to be considered.
- Project management and DX should be lead by the public sector and the private sector.
- The Ideas are in the below table.

No.	Project.	income	expenditure	risk
(1)	Kyrgyz Forest	Revenue from sales of almonds, timber, etc. Forest tourism income	Plantation growth status management agricultural, forestry and mountainous region labour cost	long-term management lack of successors
(2)	Kyrgyz sheep's milk	Revenue from the sale of milk milked from sheep.	grazing expenses milking facility labour cost	poor distribution network
(3)	Uzbekistan Anti-Desertification, Chinese herbal medicine Nikudjou.	Revenue from sales of herbal medicines	Seed and plantation costs land rent Fertiliser and water costs	(fuel) enrichment
(4)	Kyrgyz Tourism	tourist income voucher exchange	food and drink expenses Facility maintenance costs	movement restrictions aging facilities
(5)	Musical instruments, dances and festivals revival in the Central Asian watershed.	box-office revenue Goods revenue	Instrument production costs facility usage charge advertising expenses	copyright resale of tickets
(6)	Contracted IT development	Contracted development revenue Product development and sales revenue	energy bill communication fee labour cost	default on a debt shortfall in human resources

5. Collaboration with the private sector

The key for success

Solidarity among NGOs and public authorities

- Until the Koajiro Forest was opened to the public, more than 40 years had passed since Miura City's urban planning decision in 1970. During this period, Miura City, business operators, NPOs such as the Tsurumi River Watershed Networking (TR Net)* and Kanagawa Prefecture have collaborated with each other and have been able to realise nature positivity without prioritising development over the protection of the natural environment.

*Tsurumi River Watershed is the "Shape of Baku" Tsurumi River Watershed Networking (TR Net). "Homepage to introduce the Tsurumi River Watershed".2025-03-18.
<https://www.tr-net.gr.jp/>. (accessed 2025-03-24)

- In order to avoid wasting time until finalisation, the public and private sectors should work together to promote a system such as the Aral Sea Watershed Bonds (tentative name), which can promote human development while enhancing BNG. The Aral Sea Watershed Bonds (tentative name) should incorporate multiple projects to steadily generate cash for each operator, and should be a system that satisfies all stakeholders while also improving the overall management of the project through the use of digital technology.

6. Discussion

Themes

- variety of projects
- organization that manages the project
- regional currency that can be circulated and exchanged within the watershed
- Natural environment that Kyrgyzstan should conserve and expand

I would be happy if I could consult with you continuously in the future.