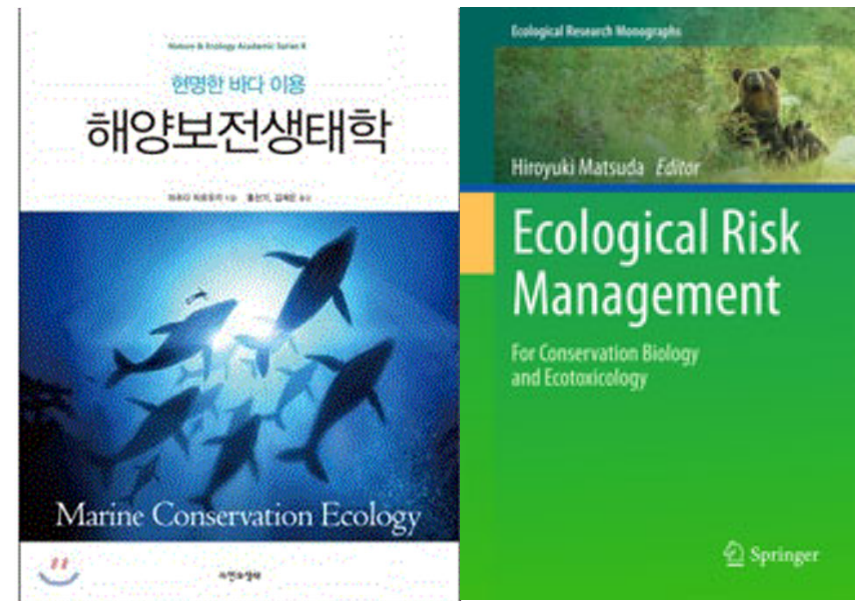




Education for Sustainable Development for **urban students** using Biosphere Reserves

- Hiroyuki Matsuda (Japan MAB Committee)

College of Urban Science, **YNU**
Yokohama National University



<https://en.unesco.org/mab/strategy/goodpractices>



What is “Urban Science?”

- **Growing urban areas require the serious issues:**

- Migration from farmland, immigration; economic inequalities; urban slums; population decline and aging; natural disasters, climate change, environmental concerns; energy sources,



Dean

- We need to build an inclusive society to meet the needs of **diverse** populations where the quality of life of all its citizens, such as people with disabilities, children, senior citizens, foreigners through safe and affordable lifestyles.
- To undertake these challenges, interdisciplinary initiatives to collaborate on ideas and practices across different disciplines in the arts and sciences, the **College of Urban Sciences opened its doors in 2017 at YNU.**



<https://www.cus.ynu.ac.jp/english/index.html>



Abstract of this lecture

- In this lecture, we will consider how to learn to create a sustainable society from BRs, from the perspective of urban dwellers. This way of learning is not unique to urban dwellers. The theory of nature's contribution to people is common to both urban and rural areas. The theory becomes clearer in cities where external natural resources are indispensable. It is also important for students from various backgrounds to talk about their own experiences, I will discuss the use of BRs in ESD from the perspective of urban students, based on case studies of BRs in Japan.

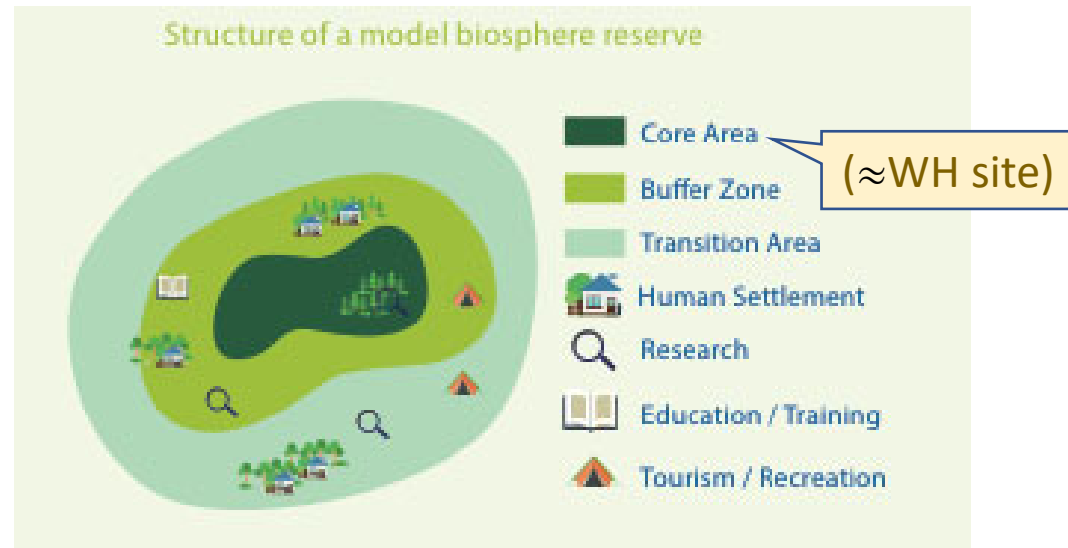


Biosphere reserves: Three zones, three functions

By Clusener-Godt

They consist of three interrelated zones that aim to fulfil three complementary and mutually reinforcing functions:

- The **core area** comprises a strictly protected zone that contributes to the conservation of ecosystems, species and genetic variation.
- The **buffer zone** surrounds the core area. Is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.
- The **transition area** is where communities foster socio-culturally and ecologically **sustainable** economic and human activities.



Miguel Clüsener-Godt "Biosphere Reserves and Global Geoparks: UNESCO tools to achieve the
SDGs and to Climate Action SDG 13 and Life on Land, SDG 15"

<https://www.cms.int/en/document/biosphere-reserves-and-global-geoparks-unesco-tools-mr-miguel-clusener-godt>



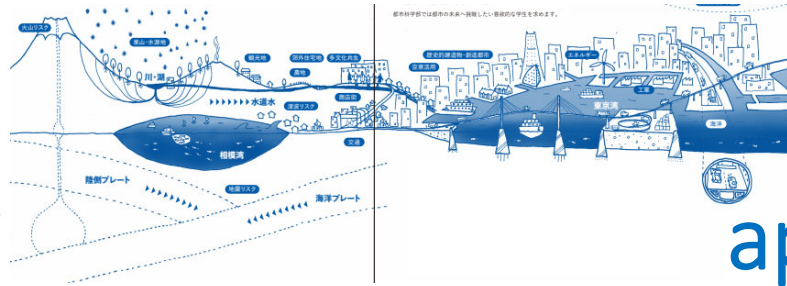
“Nature-oriented sustainable society with Biosphere Reserve and other frames”

- Graduate School of Environment & Information Sciences
- Syllabus (ca.80 students/year; master course lecture in Japanese)

8 Weeks

- 1) Outline of the system of BRs under the MAB Programme
- 2) Trends in the BR system in the world and Japan
- 3) Examples for BRs of Japan that governed by single municipalities
- 4,5) Examples for BRs of Japan that managed by multiple local governments
- 6,7) Various systems to enhance a society in harmony with nature
- 8) Utilizing the system; problems and hints for solution





Students learn BRs, apply it to their home areas.

- Report assignment for the 1st week of lecture in “Urban Science A”: (a compulsory undergraduate course in the Faculty of Urban Sciences, a 90-min lecture in Japanese, >100/year)
- 1st week: “Natural Environment and Cities: Regional Development using BRs”
- If you were to create a new biosphere reserve in your hometown or in a region with which you are connected, what kind of zoning or initiative would you consider? Please describe freely. Submit as a PDF file with no limit on length.



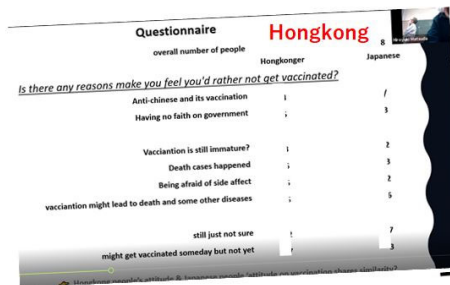
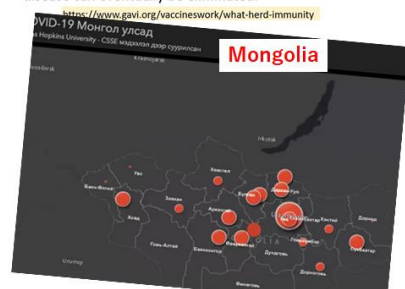
“Environmental Risk Management for Infrastructure” (in English)

- A lecture in Master Course, Infrastructure Management Program, funded by World Bank
- Students will introduce and discuss the situation in their home countries based on classroom lectures on COVID-19, climate change, BR, etc.

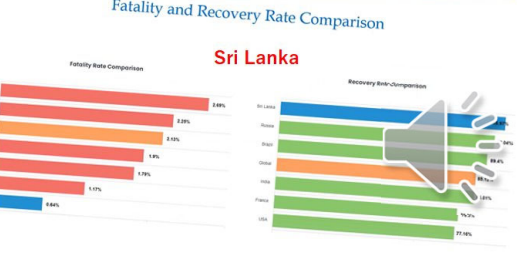
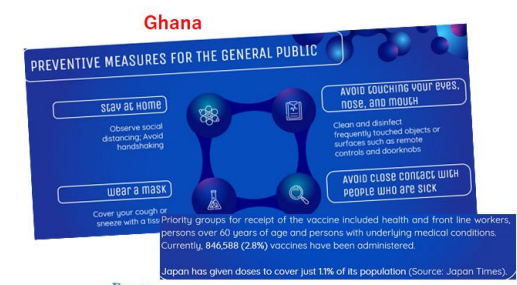
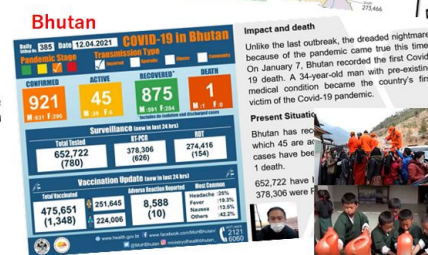
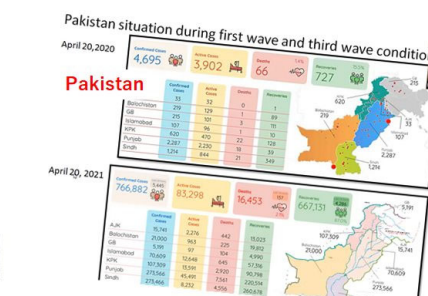
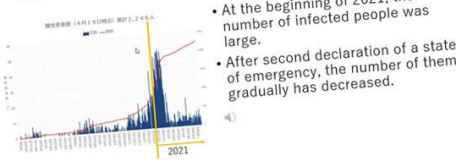
Herd immunity 集 Lecture

- Herd immunity is the indirect protection from a contagious infectious disease that happens when a population is immune either through vaccination or immunity developed through previous infection.
- This means that even people who aren't vaccinated, or in whom the vaccine doesn't trigger immunity, are protected because people around them who are immune can act as buffers between them and an infected person.
- Once herd immunity has been established for a while, and the ability of the disease to spread is hindered, the disease can eventually be eliminated.

<https://www.gavi.org/vaccineswork/what-herd-immunity>



New coronavirus situation in Fujisawa



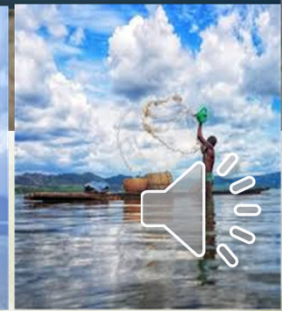
Lake Bosomtwe Biosphere Reserve (Ghana)

Lake Bosomtwe Biosphere Reserve ...

Ecological Characteristics

Socio-economic Characteristics

Benefits of Lake Bosomtwe Biosphere Reserve



BRs around cities

- They provide fresh vegetables and fish to urban dwellers, who enjoy day trips to the forest therapy, field excursions, and hot springs.
- There are also handicrafts and local specialties, and a botanical garden with flowers in four seasons.



BRs farther away from cities

- City dwellers can help plant trees in the river catchment area that serves as the city's water source.
- If there is a hydroelectric or geothermal power facility, they can experience the memories of the village that was submerged when the dam was built, and experience the blessings and awe of volcanoes.
- They will visit contract farmers and fishers who supply the food in their daily lives, and learn about the origins of food.



Tagokura Dam at Tadami BR, Japan

- Height 145.0 m
- Water surface area 995.0 ha
- Total water storage capacity 494,000,000 m³
- Year of construction start/completion: 1953/1960
- Watershed area 816.3 km²
- Power generation: 400 MW
- The village 50 families, including *matagi* (traditional hunters), opposed against the dam, but finally accepted the compensation and relocated.
- We must pass this history on.

<http://tadami-buna.sblo.jp/article/93293958.html>

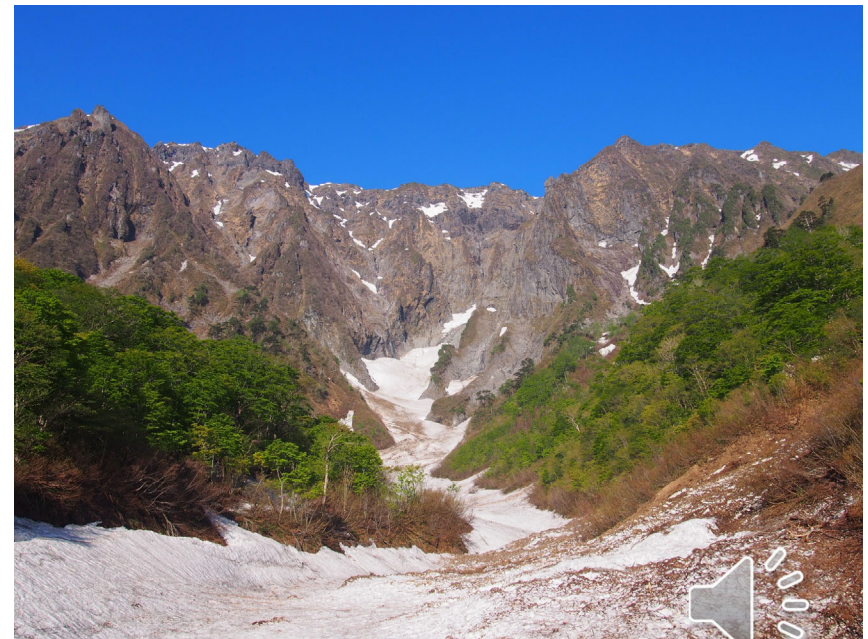
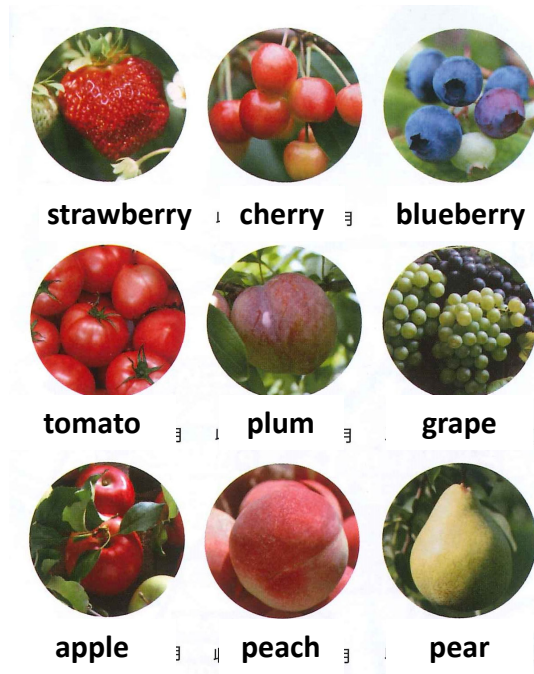


Tsuginosuke Kawai Memorial Hall 



The town of the headwaters of the Tone River, Minakami Biosphere Reserve nurtures water, forests and people

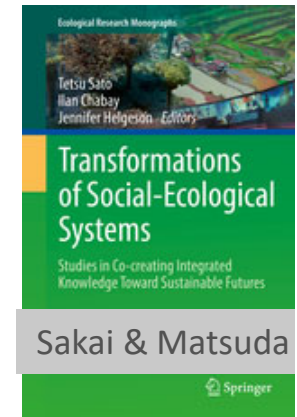
- We will also learn about the nature and lifestyle of BRs that are different from our own. Touching, knowing, and accepting what are different from ourselves make the root of humanity.



Role of residential researchers

- is responsible for the local community, live in the community and **comprehensively solve various issues**
- **seeks to realize the global principles** of the MAB (translation).
- Aya BR has been able to make major progress by wisely using visiting researchers from outside the area through the intermedia-tion of residential researchers.

Dr. K. Kawano, Aya Town
He graduated from YNU, and gives a 90-min lecture at YNU



Man and the Biosphere



MAB compiles good practices in BRs in SDGs.



JAPAN | AYA BIOSPHERE RESERVE | THE ECOLOGICAL AGRICULTURE EFFORTS OF "AYA TOWN" CO-EXISTING WITH NATURE



The **Aya Biosphere Reserve** is the largest evergreen forest left in **Japan**, where many **Japanese** endemic species live and grow. The city of Aya has been implementing regional promotional measures that ensure co-existence between nature and people, utilizing such means as collaborations with organic agriculture. It has been cultivated for over half a century based on the "Promulgation of the Ordinance for Nature Protection in Aya Town", "Promulgation of the Ordinance concerning the Promotion of Agriculture that systems" and "Landscape Ordinance of Aya Town".

- [More information](#)
- Other related SDGs: SDG 2 Zero Hunger, SDG 3 Good Health and Well-Being, SDG 12 Responsible Consumption and Production, SDG 13 Climate Action



Tadami BR's Research Grant Outcomes Presentation Meeting

- Tadami Town subsidizes research using BR, holds annual presentations of the outcomes, and publishes progress report every year.

e.g. Ms. Nishizaka (Yokohama Natl Univ.)
 "Changes in phenology of leaf development with tree height in a heavily snow-covered beech forest in Tadami"

平成30年度「自然首都・只見」 学術調査研究成果発表会

日時 平成31年1月27日(日) 13:00~16:30
 会場 朝日振興センター2階ホール(只見町黒谷館658)
 プログラム

参加費
 無料

【第1部】平成30年度「自然首都・只見」学術調査研究助成事業

- 13:15~ 伊南川の河川攪乱がハリエンジュとヤナギ類の分布に及ぼす影響
 庭野元気(新潟大学農学部生産環境科学科)、崎尾均(新潟大学農学部)
- 13:45~ 多雪地ブナ林における個体間・個体内の相対葉群高に応じた開葉日の変化;
 葉形質に着目して
 西坂志帆(横浜国立大学大学院 環境情報学府)、酒井暁子(横浜国立大学大学院
 環境情報研究院)
- 14:20~ 北限地域におけるヤマグルマ林の群集組成と林分構造
 菊地賢、須崎智広、鈴木和次郎(希少種保全研究会)
- 14:50~ 只見町の植物資源における機能性物質の探索
 目黒周作、桑原隆明(茨城キリスト教大学生生活科学部 食物健康科学科)

【第2部】沼ノ平総合学術調査研究事業

- 15:35~ 沼ノ平総合学術調査の途中成果報告
 崎尾均 氏(新潟大学農学部附属フィールド科学教育研究センター佐渡
 ステーション 教授、沼ノ平総合学術調査団団長)



主催：只見町 (Organized by Tadami-Machi)
 お問い合わせ：地域創生課ユネスコエコパーク推進係
 ☎ 0241 (82) 5220
 (Contact: Regional Revitalization Division, UNESCO Ecopark promotion office)



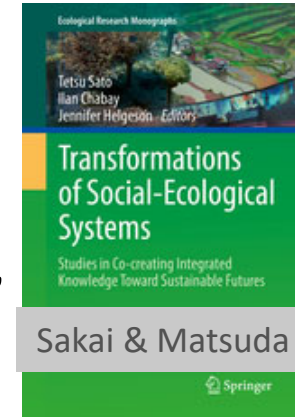
The Society of Yakushimaology established in Dec. 14-15, 2013

- About 200 scientists and islanders participated the first meeting.



Academic activities in BR

- The local government **hires residential researchers**,
- **Organize a scientific committee** for human resources in and out of the region
- **Forming a local academic base** such as a municipal museum / (the Society for Yakushimaology)
- **Establish a grant system to support research** activities in the BR / return of research outcomes
- Contracts with local universities / Invites a local branch of university
- Sponsoring international events: "International Green-Leaves Forest Summit" by Aya Municipality



1st Meeting of the Society for Yakushimaology
15 Dec. 2013, photo by H.M.

BRs and other regions are also dependent on interaction with the outside world, including cities.

- We can also see As the coronavirus pandemic severely restricted urban activities and human mobility, including tourism, and the relative maintenance of primary industries, the differences in impacts will be characterized by external interactions.



Many tourists and shops in 2018

Lake Malawi WH

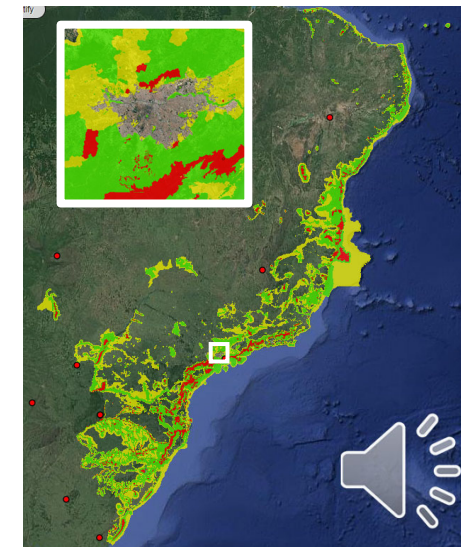
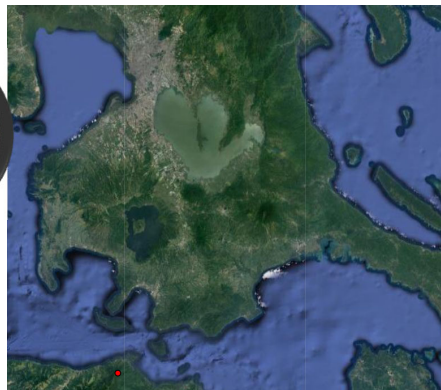
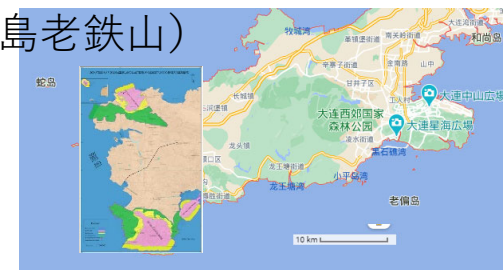
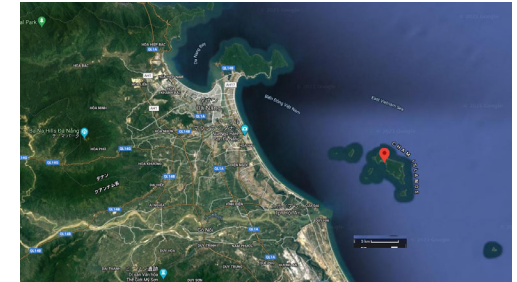


Very few tourists in 2021



BRs that can be visited on day trips from universities in cities

- Danang Univ. – [Cu Lao Cham](#) – [Hoi An](#)
- Univ. of São Paulo – Mt. Atlântika
- Dalian Univ. – Snake Is. & Mt. Laotie (蛇島老鉄山)
- Univ. of Hormozgan – Hara
- Univ. of Philippines – Puerto Galera
- Univ. of Malawi – Lake Chilwa Wetland



ESD utilizing BRs (Guidebook for Teachers) Aiming for coexistence of nature and humans

Part 1 What is ESD in BRs?

1. The Importance of ESD
2. What is MAB Program and BRs?
3. Basic principles of ESD in BRs

Part 2: Overview of BRs in Japan

- Tadami, Shiga Highland, Mt. Hakusan, Minami-Alps, Odaigahara-Omineyama, Aya, Yakushima

Part 3: Characteristics and Issues of Each BR in Japan

- Nature and People's Life in Tadami BR
 1. Geographical location & social/ecological background of Tadami Town
 2. Characteristics of the natural environment in Tadami BR
 3. Relationship between nature and people's life (especially about culture)
 4. Local issues / 5. existing efforts /6. exercises



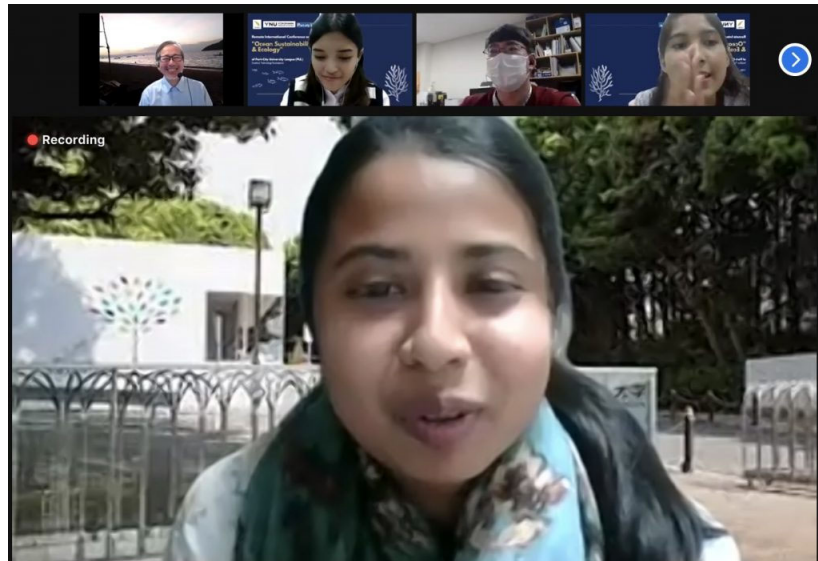
6. Exercises (for BR “X”)

- Propose specific measures and methods to solve the regional issues faced by BR “X”.
 1. List regional issues other than mentioned above for the sustainable development of BR “X”.
 2. Choose one of the issues listed above or (1), and describe your own solution through documents and interviews with residents.
 3. Form groups of people who chose the same issue, compare and discuss solutions within the group, and select the best solution.
 4. The representative of the group should present the best solution and evaluate it among the groups.
 5. Present and discuss the solution to the residents.



Remote Conference of International Port-City University League, by Zoom, April 28 & 30, 2021 from Sao Paulo, Yokohama*2, Madras, Lampung, Hormozgan, Busan, Shandong,

- Session 1: Ocean Sustainability (Part I)
- Session 2: Ocean Sustainability (Part II)
- Session 3: Students Session
-



Agenda of the Oceans

Agenda 2030

GOAL 14
CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT GOALS

1. NO POVERTY
2. ZERO HUNGER
3. GOOD HEALTH AND WELL-BEING
4. QUALITY EDUCATION
5. GENDER EQUALITY
6. CLEAN WATER AND SANITATION
7. AFFORDABLE AND CLEAN ENERGY
8. DECENT WORK AND ECONOMIC GROWTH
9. INDUSTRY, INNOVATION AND INFRASTRUCTURE
10. REDUCED INEQUALITIES
11. SUSTAINABLE CITIES AND COMMUNITIES
12. RESPONSIBLE CONSUMPTION AND PRODUCTION
13. CLIMATE ACTION
14. LIFE BELOW WATER
15. LIFE ON LAND
16. PEACE, JUSTICE AND STRONG INSTITUTIONS
17. PARTNERSHIPS FOR GOAL ACHIEVEMENT

Recording

Acep Purpon

Hiroyuki Matsuda

Alexander Turra

Sundaravadivelu

Agenda of the Oceans

The Science We Need for the Ocean We Want

2021-2030 United Nations Decade of Ocean Science for Sustainable Development

Webinar on Integrated coastal management using biosphere reserves or Satoumi

Iran time 9:50am– 11:45am (Japan time 15:20–17:15), February 13 (Sat), 2021

Language: English [Flyer](#)

Coastal areas and these ecosystem services are used in a variety of ways. Therefore, it is necessary to coordinate the use by various stakeholders. Marine spatial planning is the guideline for this, and it is important to agree on integrated coastal zone management. UNESCO's MAB programme, which aims to balance between human activities and conservation, consolidates its practices in biosphere reserves. In this seminar, we would like to consider discuss about marine management using the example of BR/GP in Qeshm Island, Iran.



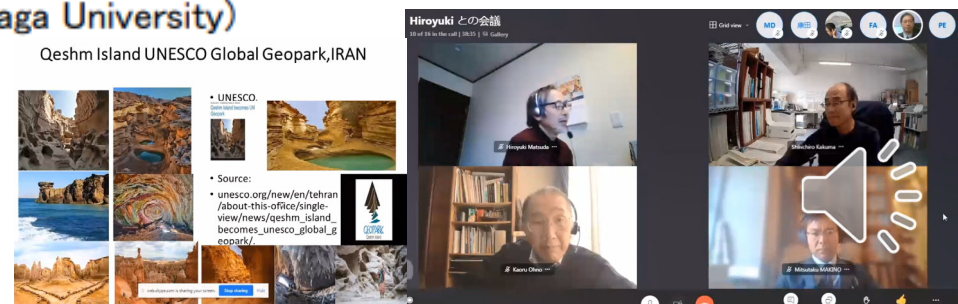
Programme (Japan time)

- 15:20– Opening Remark by Hiroyuki Matsuda (Yokohama National University)
- 15:30–16:00 "Coastal Management on Qeshm Island". by [Ehsan Kamrani](#) (Hormozgan University)
- 16:00–16:30 "UNESCO Global Geopark and Biosphere Reserve in Qeshm Island" by [Jiro Iguchi](#) (PADECO Co. Ltd.)
- 16:30–17:00 "Fisheries Management Toolbox: Self-assessment scheme for fishers to improve fisheries co-management in Japanese coastal fisheries" by [Mitsutaku Makino](#) (U.Tokyo, IOC Japan Committee)
- 17:00– 17:15 Discussion moderated by Hiroyuki Matsuda (Yokohama National University)
- 17:00–17:05: Comments by [Shin-ichiro Kakuma](#) (Saga University)



By [skype](#)

<https://ecorisk.web.fc2.com/2021/Webinar210213.pdf>



Former Director-General of UNESCO, Ms. Irina Bokova:
While **World Heritage** helps to **preserve values**,
Biosphere Reserves are helping to **create values**,
Dresden, June 27, 2011



Tanaka & Wakamatsu (2018)
Env. Manag. 61:155-170

