

Challenge! Open Governance 2017 Application Form for Citizens & Students			
Title of Regional Issue*	No.	Title	Name of Municipality
	- (事務局用)	Efficient Usage of Free-floating Plants in the Lake Biwa Area	Otsu City, Shiga Prefecture
Name of the Idea (disclosure)	Organizing a citizen-based, social mechanism for efficient usage of water plants in the Lake Biwa Area		

(*Enter the title of regional issue of the applying municipality as described in COG2017 website.

1. Applicant Information

Name of the team (disclosure)	Suihouzan (Water Plants are a mountain of treasure)		
Team attribution (disclosure)	<input checked="" type="radio"/> 1. 市民によるチーム <input type="radio"/> 2. 学生によるチーム <input type="radio"/> 3. 市民、学生の混成によるチーム		
Number of members	8 名		
Team leader (only the name will be disclosed)	Name (disclosure)	山田英二	

※Conditions for information disclosure

Information provided in “2. Description of Idea” beginning on the next page will be disclosed under the Creative Commons Attribution 4.0 International license (CC BY 4.0) after confirmation of its contents. At the request of the applicant, however, such information will be disclosed under the CC BY-NC (Attribution – Noncommercial) 4.0 International license. Please let us know your preference at the time of application. **In both cases, the name of the applying team will be used.**

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(Notes)

<Name of the file for application and addressee>

1. Send the file with the filename COG2016_applicationform_teamname_municipalityname to the address below. You can also access this address via the application registration column on the COG2016 website of the Graduate School of Public Policy, The University of Tokyo: admin_padiit_cog2016@pp.u-tokyo.ac.jp

<Public or private information>

2. The name of the idea, name of the team, team attribution, name of the team leader, and “description of idea” will be open to the public.
3. The contents above will be reviewed before disclosure (anything which is harmful to public order, unethical, or making use of a plagiarized idea will not be disclosed).
4. The “self-evaluation” column of the application form will not be disclosed. However, if the content is excellent and deemed useful for other applicants, it may be disclosed after consultation during the advice stage after the open review.
5. If any element associated with an intellectual property right whose holder is not a member of the applying team, such as texts, photographs, and graphics, is included in the “description of idea,” it should be demarcated stating that it is quoted according to the relevant laws and regulations or that its use has been approved by the right holder. Please do the same for the “self-evaluation” column.

<List of the team members>

Submit the list of the team members in the attached Excel file (Any information about members other than the team leader as specified in 2. above will not be disclosed except to the COG Secretariat. Please see the attachment for details).

2. Description of the Idea

Fill in three items: (1) content of idea, (2) rationale for idea, and (3) how to realize it.

(1) content of the idea

Please show the contents of the idea by putting these elements in the idea as to who, what, where, when, and how it is a public service (activity) to do.

Two Water Plant Issues

The issue of excessive “water plant” proliferation in the southern region of Lake Biwa since the 1994 summer drought, can be divided into two main issues.

(1) Water plants washing ashore from Lake Biwa (“Nuisance Problems,” such as stench and ruining the scenery) <= Primarily dealt with by nearby municipalities.

(2) Water plants which grow thickly at the surface and bottom of the lake (“Environmental Problems,” such as the impact on the ecosystem <= Primarily dealt with by Shiga Prefecture).

- Unprocessable Amount of Water Plants -

Although Otsu City and Shiga Prefecture use taxes to process water plants, for re-use as compost and so forth, it is said that only around 5% of water plants, which grow, can be processed.

Meanwhile, although some of the water plants are being dealt with by shoreline residents and organizations conducting tourism and leisure businesses on Lake Biwa, the excessive summer overgrowth of water plants on the shoreline and lake surface, give off a foul stench which has a major negative impact on the region’s image.



Plants washed ashore / Modification of a Wheelbarrow

Using people-power to solve close-at-hand “Nuisance Problems.”

Shoreline residents in Manohama, Otsu City, (northern region of Otsu City), continue to show ingenuity in dealing with the plants by providing SNS updates on washed up water plants and the processing of said plants, as well as in designing original equipment to increase processing efficiency.

- Field Test of the Water-plant Recycling System at Manohama -

A joint residents’ association of the three municipalities neighboring Manohama will create a collaborative framework between local residents, supportive citizens from nearby regions, and various specialists who can offer effective advice on activities, to undertake a field test of the recycling system from the collection of water-plants to their re-use as compost.

Specifically, water-plant compost will be used in kindergartens, childcare centers, school flowerbeds, vegetable gardens, parks, and flower beds at public facilities within the school zone, to create a regional, “small cycle,” facilitating character-building and the re-evaluation of the region.

*Connecting residents and experts

Gaining the cooperation and advice of experts, regarding 1) a method for ordinary citizens to be able to compost, 2) technology and tools for collecting and processing water-plants, 3) establishing a compost site, and 4) a method of transport, in order for the community to undertake the demonstration.

*Information dissemination and recruiting participants

Using the Web and SNS to connect individuals with regional organizations and to form a volunteer group to aid with shoreline work and composting.

*Nurturing regional human resources

To link with regional activities, character-building activities, environmental educational programs offered at schools and within the region, as well as to carry out instructions from experts and to deliver talks.

*Creation of a manual and expansion into other regions

To collate knowledge and data gained from the field test, as well as information on tools and human resources for release as a manual available to the public. To solve one aspect of the Lake Biwa water-plant problem, leading to environmental sustainability through the expansion of the program to other regions.

浜を通した琵琶湖への関心の強化/ Increased affection for Lake Biwa via the shoreline



真野浜/Manohama

小さな循環/Small Cycle

幼稚園・保育園・学校・公共施設・花壇・菜園/Kindergartens, childcare centers, schools, public facilities, flowerbeds, vegetable gardens

乾燥作業道具ボランティア/Volunteers operating the drying machinery

運搬・堆肥化/ Transport, composting

堆肥活用の技術指導教室/Classes teaching compost usage skills

環境教育総合学習との連携/ Links with general training in environmental education

地域の浜の意識化愛着の強化 /Increased awareness of and affection for the region's shoreline

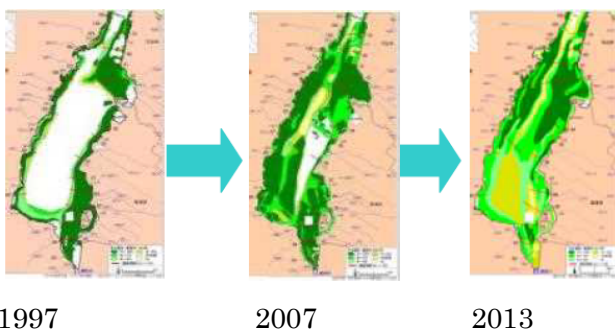
(2) Rationale for the idea

Describe the Rationale for the idea (why have you chosen this idea?) with numerical data (achievements, statistics, or questionnaire results) and evidence (materials, plans, or existing measures) that support the idea (collectively, the “data”).

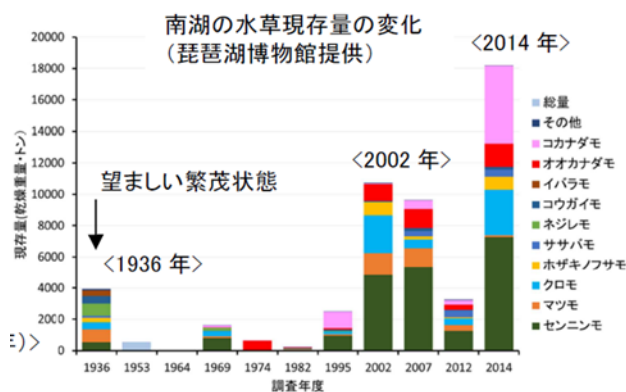
Lake Biwa's serious water-plant problem

In recent years the water-plants in Lake Biwa have exhibited excessive growth, causing serious “Nuisance Problems” such as stench and ruined scenery, and “Environmental Problems” such as adverse impact on ecosystems.

Water-plant growth trends for the southern region of Lake Biwa (south lake)



※Source: “Outline of water-plant measures operations,” Lake Biwa Policy Division, Shiga Prefectural Government.



現存量（乾燥重量・トン） / Current plant mass (dried mass in ton)

南湖の水草現存量の変化 / Water-plant mass changes in south lake

（琵琶湖博物館提供） / Source: Lake Biwa Museum

望ましい繁茂状態 / Optimal growth levels

1936年 / 1936

2002年 / 2002

2014年 / 2014

調査年度 / Survey Year

総量 / Total amount

その他 / Others

コカナダモ / *Elodea nuttallii*

オオカナダモ / *Egeria densa*

イバラモ / (*Najas marina*)

コウガイモ / *Vallisneria denseserrulata* Makino

ネジレモ / *Vallisneria asiatica* Miki

ササバモ / *Potamogeton wrightii*

ホザキノフサモ / *Myriophyllum spicatum*

クロモ / *Hydrilla verticillata*

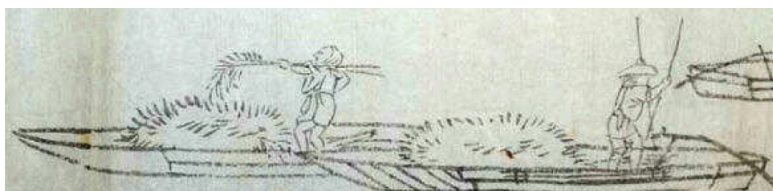
マツモ / *Ceratophyllum demersum*

センニンモ / *Potamogeton maackianus*

Water-plants have long co-existed with people

Water-plants from Lake Biwa have long been used as a fertilizer and soil-improving material, and is even mentioned in the Japanese literary classic, “Manyoshu.”

During the Edo period, when conflicts arose over the rights to collect water-plants, it was treated as a very important resource by people at the time.



※ Print from the Edo Period illustrating a scenic view of water-plant harvesting boat on Lake Biwa (Otsu City Museum of History).

The end of co-existence between people and water-plants

With the proliferation of chemical fertilizers and other advances during the modernization of agriculture, and the effects of dwindling opportunities for the use of water-plants as a resource from the mid-1950s; in recent years, there have been some years when over 90% of the south lake (southern region of Lake Biwa) have been covered in water-plants, and it is becoming a serious problem affecting the living environment, the natural environment and the ecosystem.



Water-plants washed up on the northern part of the shoreline in Otsu City.
(Source: Manohama Swimming Area)

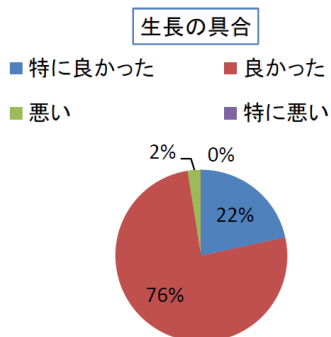


Removal operations by a specialized water-plant harvester boat in southern Otsu City.
(Source: Lake Biwa Policy Division, Shiga Prefectural Government.)

Re-use of removed water-plants as compost

Shiga Prefecture has invested ¥300 million and Otsu city ¥23 million of tax revenue (both actual figures for the 2016-2017 financial year), in carrying out the removal of water-plants. Shiga Prefecture is utilizing a sustainability system, like that of pre-1950s, where water-plants grown in Lake Biwa are being returned to nature, by establishing a way to use water-plants efficiently as compost, which is highly regarded by citizens.

[Lake Biwa Water-plant Compost Monitor Reports (2016 -2017 financial year)]



Growth

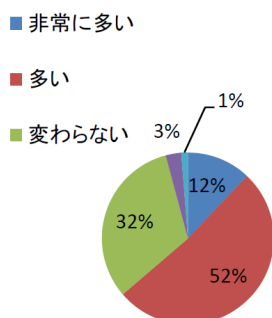
特に良かった/Especially good

良かった / Good

悪い / Bad

特に悪い / Especially Bad

野菜の収穫量



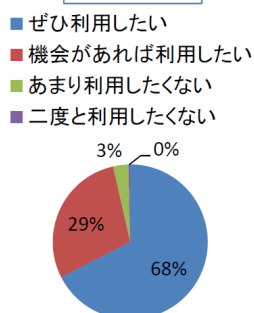
Amount of Vegetables Harvested

非常に多い/Very many

多い/Many

変わらない/Same as usual

たい肥の利用



Compost Use

是非利用したい/Definitely want to use

機会があれば利用したい/Would like to use if the opportunity arises

あまり利用したくない/Don't really want to use

二度と利用したくない/Never want to use again

※ Source: Ohmi Environment Conservation Foundation Webpage

Amount of water-plants being processed is around 5%

Because only a small portion of water-plants can be processed by the municipality, much of the burden of processing water-plants washed ashore falls to the nearby residents and leads to complaints against the municipal government. Ingenuity to tackle the problem on a region-wide scale is being sought, since it is impossible for municipal governments to shoulder the entire burden.

大津市に寄せられた水草関連の苦情件数

	2014年	2015年	2016年
苦情件数	1	8	15

※大津市オープンデータカタログより

Number of Complaints to Otsu City Government Regarding Water-plants

	2014	2015	2016
Number of Complaints	1	8	15

※ Source: Otsu City open data catalog

Prefectural Citizens with a High Level of Environmental Awareness

Shiga Prefecture envelops Lake Biwa, which is the water source for the entire Kansai region. Although many residents are aware of the water-plant problem, due in part to their traditionally high level of environmental awareness, there has been an insufficiency of places for citizens to become involved in related activities.

- Shops cooperating with the dispersion of water-plant compost

A flower shop in Otsu City offers customers water-plant compost for free.



Photo source: "Flower produce one flower"

- Citizens attending a talk hosted by Shiga Prefectural Government



People attending classes deepen their understanding of the environment by becoming involved in water-plant resource recycling.

Photo source: Shiga Prefectural Government webpage

Achieving results in our own region by doing what we can with the cooperation of experts.

Citizens claiming the "Lake Biwa water-plant problem (Nuisance problem)" as their own, create places to become involved, => **to undertake a regional field test of the water-plant resource recycle system.**

(3) how to realize it.

Describe the process and milestones, etc.

Phase 1

Processing water-plants for re-use as compost

Perform a field-test of the resource recycling system at Manohama

(1) Observation

Conduct an observation of Lake Biwa to gain information of water-plant growth and water quality.

(2) Collection

Establish a mechanism for recruiting volunteers and developing tools.

(3) Processing

Securing a processing space and experimenting to find effective drying methods and composting methods.

(4) Re-use

Testing the effectiveness of water-plant compost and establishing an efficient method of distribution.

(5) Increasing participation

Continuing to post information via the web, etc., to increase the number of people who share interest in the project.

**(1) Observation****(2) Collection****(3) Processing****(4) Re-use****(5) Increasing participation**

The main organizer behind the project activities, the **joint residents' association of the three municipalities neighboring Manohama**, is already underway linking local members with various people active within their hometown regions. Additionally, the team of experts who support the field test have already held repeated talks, and an underlying support for the project activities is in the process of being formed. The **team of experts** comprise a diverse range of individuals such as park

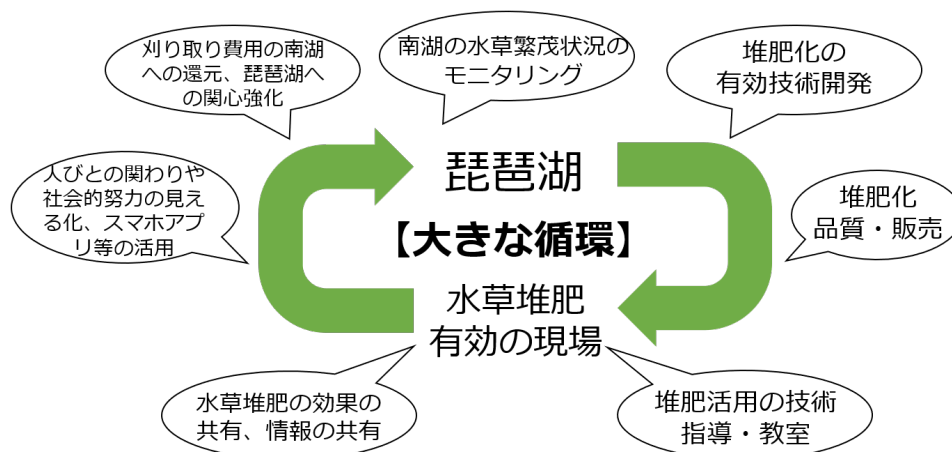
managers, tourist boat operators, Lake Biwa leisure businesses, florist owners, university researchers, fishermen, local government employees, and system engineers.

Moreover, cloud funding is being planned to gather funds for project activities and PR.

Phase 2

To use information and knowledge gained through involvement in tackling “nuisance problems,” such as “resource recycling of water-plants washed ashore (small cycle),” to expand into dealing with “environmental problems,” such as “recycling of water plants which grow thickly at the surface and bottom of Lake Biwa (larger cycle). Having the participation of a very diverse organization allows everyone to actively share their own specialized skills.

Additionally, synergistic effects are being sought by linking with the “formation of a community that utilizes the aquatic plant resources of the Lake Biwa basin area through the fusion of open science and social cooperation (Mitsui & Co. Environment Fund)” being run by the Research Institute for Humanity and Nature (Inter-University Research Institute Corporation/National Institutes for the Humanities).



琵琶湖 / Lake Biwa

大きな循環 / Large cycle

水草堆肥有効現場 / Valid water-plant compost sites

刈り取り費用の南湖への還元、琵琶湖への関心強化 / Returning the harvesting costs back to the south lake area, increased interest in Lake Biwa

南湖の水草繁茂状態のモニタリング / Monitoring of the water-plant growth in the south lake area

堆肥化の有効技術開発 / Development of effective composting technology

堆肥化品質・販売 / Compost quality/sales

堆肥活用技術指導・教室 / Instructions and classes on compost usage skills

水草堆肥の効果の共有、情報の共有 / Sharing information and the effects of water-plant composting

人々との関りや社会的努力の見える化、スマホアプリ等の活用 / Making human interaction and social efforts visible, use of smartphone applications

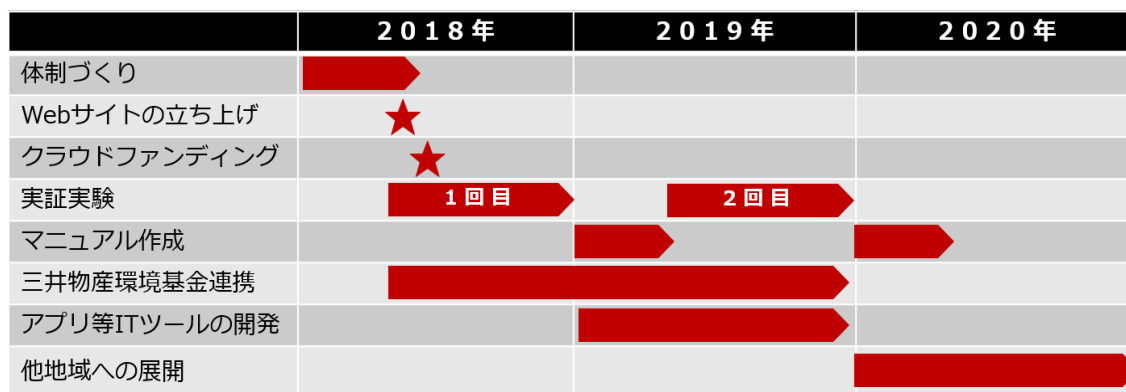
Phase 3

Expanding results demonstrated in Phase 1, to other regions.

Timely horizontal development is possible by sharing the in-house manual, tools, and expert human resources.

Moreover, building a mechanism to connect with each other, to expand information and knowledge gain at this stage back to Manohama.

Schedule



	2018	2019	2020
Building the framework			
Creating a web page			
Cloud funding			
Field test	First test	Second test	
Writing the manual			
Linking with Mitsui & Co. Environment Fund			
Development of IT tools, such as apps			
Expansion to other regions			