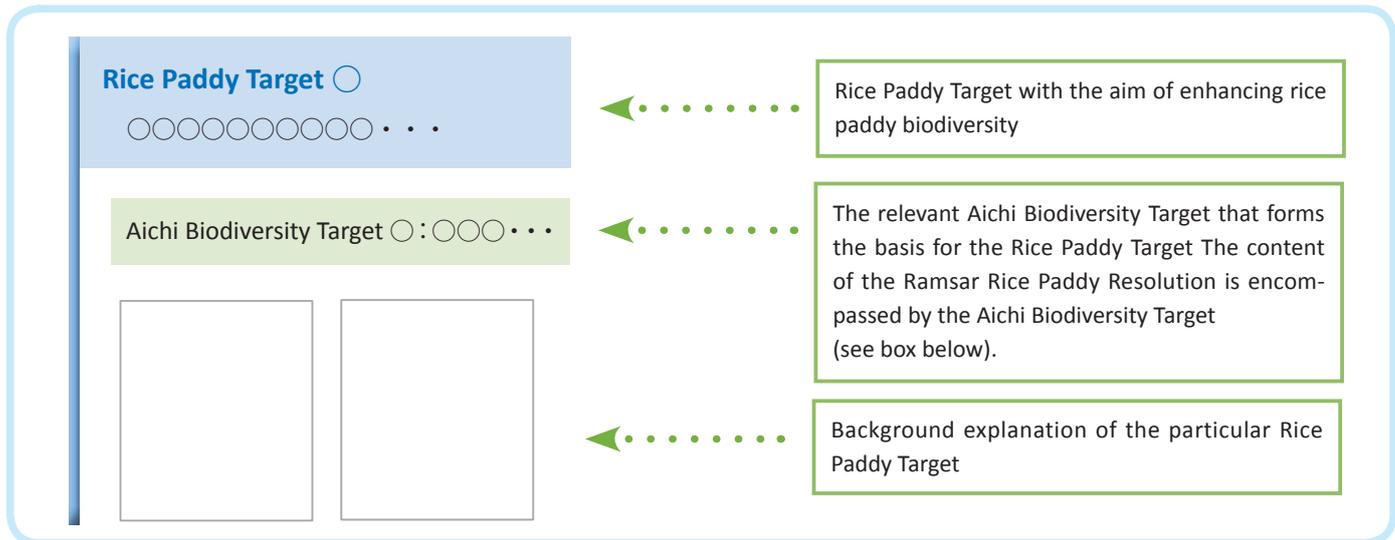


The Rice Paddy Targets

The Rice Paddy Targets and corresponding Aichi Biodiversity Targets

The Rice Paddy Targets were taken from Aichi Biodiversity Targets relevant to rice paddy biodiversity, and also include elements relating to rice paddies as wetland habitat for waterbirds, etc., from “Resolution X.31, Enhancing biodiversity in rice paddies as wetland systems,” adopted by the 10th Conference of the Parties to the Ramsar Convention.



The Ramsar Rice Paddy Resolution

The 10th Conference of the Contracting Parties to the Ramsar Convention on Wetlands held in Korea in 2008 adopted “Resolution X.31, Enhancing biodiversity in rice paddies as wetland systems.” Among the 18 paragraphs of this resolution, paragraph 17 in particular calls on Parties, including the Government of Japan, to promote measures that make a contribution to waterbird population protection, etc. in view of rice paddies’ importance not only for food production but also for supporting wetland ecosystems important as habitat for living things.

Ramsar Resolution X.31, Paragraph 17 : (see.p48)

“Encourages Contracting Parties to: (i) identify challenges and opportunities associated with managing rice paddies as wetland systems in the context of the wise use of wetlands, also paying attention to the concept of connectivity between rice paddies, natural wetlands and river basins, as well as to the promotion of sustainable agricultural practices, and furthermore to encourage conservation authorities to collaborate with agriculture authorities and those agencies responsible for rice production and disease prevention to identify and actively promote planning, farming practices, and water management in rice paddies that serve to enhance the natural biodiversity, ecosystem services, and sustainability of rice paddies, while also contributing to improved nutrition, health and well-being of farming household members and surrounding community members and to the conservation of waterbird populations;...”

The 10th Conference of the Parties to the Convention on Biological Diversity in 2010 adopted decision X/34 on “Agricultural biodiversity,” and paragraph 19 of this decision refers to the Ramsar resolution on rice paddies as follows:

“The Conference of the Parties 19. Welcomes resolution X.31 ... on the subject ‘Enhancing biodiversity in rice paddies as wetland ecosystems’, ... recognizes the relevance of this resolution to the implementation of the programme of work on agricultural biodiversity and invites relevant Parties, as appropriate, to fully implement this resolution;...”

Rice Paddy Target 1

Promote communication, education and public awareness about rice paddy biodiversity.

Aichi Biodiversity Target 1 : By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve it and use it sustainably.

Aichi Biodiversity Target 1 calls on people to :

- 1) be aware of biodiversity values,
- 2) be aware of effective ways to conserve biodiversity, and
- 3) be aware of ways to use biodiversity sustainably.

Applying this to rice paddy biodiversity will mean raising awareness among all the many different types of people who need to know about enhancing rice paddy diversity.

Rice Paddy Target 1 calls for communication, education and other awareness-raising activities – that is, rice paddy

biodiversity CEPA(Communication, Education, Participation and Awareness raising). To achieve this target, awareness-raising activities involving hands-on experiences in rice paddies such as planting and harvesting of rice will need to incorporate biodiversity aspects such as surveys of living things in rice paddies.

A lot of people will have to know about rice paddy biodiversity if these activities are to be carried out.

Rice Paddy Target 2

Introduce rice paddy biodiversity values into all levels of national and local government planning.

Aichi Biodiversity Target 2 : By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Aichi Biodiversity Target 2 calls firstly for the integration of biodiversity values during the planning process into all types of national development plans, as well as into the development plans of local governments, with relevant language clearly expressed in the main body of such plans.

This target has been adapted to rice paddy biodiversity in Rice Paddy Target 2.

All local governments, including prefectures, major and provincial cities, towns and villages, draw up comprehensive, long-term plans that serve as their most basic and highest-ranking planning documents. These plans constitute these governments' future image for their jurisdictions, and describe all the policies, measures, structures and systems they are obliged to create and implement.

In addition, local governments also have individual plans for each sector, such as urban infrastructure, industry,

economy, environment, education, culture, health, welfare and so on.

On the national level, there are large-scale plans for each sector as well.

Clear language reflecting rice paddy diversity values must be incorporated into all these plans.



Rice Paddy Target 3

Remove or revise policies and subsidies that harm protection of rice paddy biodiversity.

Aichi Biodiversity Target 3 : By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

In Japan, there are policies and subsidies harmful to biodiversity that deal with farmland, farming facility construction & maintenance, and pest & disease control, and these must be eliminated, phased out or reformed by 2020.

For example, systems of direct payments support projects for creating and maintaining consolidated rice paddy lands and projects undertaken in designated mountainous areas; some of these are significant in scale and do considerable harm to biodiversity. These direct payment systems need to be reformed.

Policies and subsidies harmful to biodiversity on both the national and local levels need to be clearly identified, and eliminated or reformed.

Rice Paddy Target 4

Increase and broaden policies and subsidies that work to enhance rice paddy biodiversity.

Aichi Biodiversity Target 3 : By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Practical measures must be applied on site if rice paddy biodiversity is to be enhanced: examples include converting to agriculture not dependent on agri-chemicals and artificial fertilizers, greening of embankments between rice paddies, maintaining irrigation canals that are not lined with concrete, and flooding rice paddies not currently under cultivation in winter or summer.

Nationwide promotion of rice agriculture that provides for biodiversity protection will require direct support systems for measures that require farmers to expend extra time and labor.

New approaches are needed to expand or augment a variety of other policies and subsidies that can enhance rice

paddy biodiversity, for example, direct support systems for agriculture designed to deal with global warming or with biodiversity in general, or support systems for activities that enhance rice paddies' multi-lateral functions.

Rice Paddy Target 5

Promote activities that enhance rice paddy biodiversity by stakeholders at all levels.

Aichi Biodiversity Target 4 : By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Some have pointed to the existence of dangers to the sustainability of Japan's rice agriculture itself, such as development pressure, depopulation of rural areas, increases in imported rice supplies, etc.

To strengthen Japanese rice agriculture's sustainability, biodiversity enhancing rice agriculture will be needed in order to ensure it is carried out within safe ecological limits.

To achieve this, stakeholders at all levels, including national and local governments, businesses, producers and consumers, need to participate in one way or another in

activities designed to enhance rice paddy biodiversity.

For example, national and local governments can implement appropriate policies; businesses can actively seek to stock or use agricultural products grown in biodiversity enhancing rice paddies; farmers can convert to biodiversity enhancing methods; and consumers can actively purchase such products or directly assist farmers in labor-intensive tasks designed to enhance biodiversity.

Rice Paddy Target 6

Reduce to nearly zero the speed of destruction of rice paddies that contribute to biodiversity protection, and prevent rice paddy fragmentation and biodiversity degradation.

Aichi Biodiversity Target 5 : By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Rice paddies that harbor a wealth of living things are "natural habitats" as understood in Aichi Biodiversity Target 5. However, with the spread of consolidated rice paddy cultivation and agricultural methods that give first priority to profitability and efficiency, rice paddies are annually losing the ability to provide habitat to a diversity of living things.

In fiscal 2011, Japan's total rice paddy area was 2.5 million hectares (ha); of this, consolidated rice paddy land accounted for 1.55 million ha. The further this trend continues, the more biological diversity will be lost.

From now on, rice paddy consolidation projects should be obliged to provide for biodiversity, and technical standards should be established to that purpose. These and other measures should be taken to prevent any further loss of rice paddies that contribute to biological diversity protection.



Rice Paddy Target 7

Sustainably manage areas where agriculture is being pursued in a manner that enhances rice paddy biodiversity.

Aichi Biodiversity Target 7 : By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

By 2020, we must have careful, attentive management that meticulously protects biodiversity in areas under agriculture, aquaculture and forestry.

For example, in farming villages the practice of agriculture creates rice paddies, dry fields, irrigation canals, secondary forests, ponds, and other environments where a wealth of plants and animals can co-exist with humans. In this sense, agriculture can be a plus for biological diversity, but modern farms that give priority to profits and efficiency,

irrigation canals lined with concrete, and farming methods involving the over-use of agrichemicals and fertilizer bring about major losses of biodiversity. Many creatures formerly common in farming villages such as Predaceous diving beetles (*Cybister japonicus*) and Japanese rice fish (*Oryzias latipes* and *O.sakaizumi*.) have been added to the Red List of endangered species.

Rice Paddy Target 8

Prevent the loss of rice paddy biodiversity resulting from inappropriate use of agricultural chemicals and artificial fertilizers.

Aichi Biodiversity Target 8 : By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Because pollution from excess nutrients such as nitrogen and phosphorus negatively affects the ecosystem functions and biodiversity of rivers and the sea, utilization levels must be reduced to harmless levels by 2020.

The point of Aichi Biodiversity Target 8 is to prevent harmful pollution. Pollution detrimental to ecosystem function and biodiversity is not limited to excess nutrients; serious effects are also caused by heavy metals and chemicals originating from industrial wastewater and agri-chemicals as well as radioactive materials from accidents at nuclear power stations. Soil and waste material runoff from construction sites, atmospheric pollution from acid rain and other causes, and pollution from aerial spraying of pesticides also have detrimental effects on ecosystem function and biodiversity. The use of chemical agents to sterilize soil and the unprincipled application of micro-organisms can also cause losses of soil biodiversity. The issue of excess nutrient pollution cited in Aichi Biodiversity Target 8 can be

considered an example.

Rice Paddy Target 8 seeks to protect the ecosystem function and biodiversity of rice paddies from all kinds of pollution, and considers the inappropriate use of pesticides, bactericides, weed killers and other agri-chemicals and chemical fertilizers to be problematic, "inappropriate" being defined as follows:

- 1) having significant negative effects on non-target organisms,
- 2) used in an unapproved manner,
- 3) used without having clearly determined the presence of the specified disease or pest,
- 4) used without having determined the necessity for use.

Negative effects on ecosystem function and biodiversity from agricultural chemicals and fertilizers running off farmlands into surrounding areas must also be prevented.

Rice Paddy Target 9

Prevent impacts of invasive alien species on rice paddy biodiversity.

Aichi Biodiversity Target 9 : By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

A detailed consideration of Aichi Biodiversity Target 9 shows that it encompasses the following actions:

- 1) Identify what plants and animals are invasive alien species and how they entered the country (or region) and became established,
- 2) Assign priorities and eradicate invasive alien species,
- 3) Control invasive alien species so that they do not proliferate or extend their ranges,
- 4) Prevent their introduction and establishment by taking measures to block their entrance into the country or region at borders,
- 5) Establish management regimes to prevent naturalization into the wild of invasive species that have entered the country legally.

A list of invasive alien species has been drawn up in accordance with Japan's Law on Prevention against Environmental Damage by Specific Exotic Animals and Plants, but

its scale is limited and many invasive alien species that threaten to damage ecosystems, etc. have not yet been included on this list. The status of invasive alien species that still fall outside the legal system must now be determined and strong countermeasures adopted.

Invasive alien species that live in rice paddy ecosystems, including irrigation canals, that especially need to be controlled at present include both legally designated species such as the Golden mussel (*Limnoperna fortunei*), Parrot feather water milfoil (*Mynophyllum aquaticum*), Azolla cristata, and American bullfrog (*Rana catesbeiana*), as well as still un-designated species such as Channeled apple snail (*Pomacea canaliculata*), Large-flowered waterweed (*Egeria densa*) and Common water hyacinth (*Eichhorria crassipes*). In conformity with Aichi Biodiversity Target 9, invasive alien species impacting rice paddy ecosystems need to be specified, controlled or eradicated.

Rice Paddy Target 10

Prevent genetic hybridization of wild flora and fauna that utilize rice paddies.

Aichi Biodiversity Target 9 : By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Plants and animals from outside the region or from other countries have been introduced into rice paddies in order to increase populations of living things, resulting in potential genetic hybridization problems, particularly in the case of introduced Pond loach (*Paramisgurnis dabryanus*) and Japanese rice fish.

The hybridization of native species with creatures introduced as agricultural resources or as biopesticides, such as between native species of bumblebees with Buff-tailed

Bumblebees (*Bombus terrestris*), needs to be stopped. It has also been pointed out that introduction of soil-improvement products utilizing micro-organisms can disturb native soil micro-organisms.

Rice Paddy Target 11

Integrate rice paddies contributing to biodiversity conservation into protected areas.

Aichi Biodiversity Target 11 : By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystems services, are conserved through effectively managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

At the 9th Conference of the Parties (COP) to the Ramsar Convention in 2005, “Kabukuri-numa and the surrounding rice paddies,” and at the 11th Ramsar COP in 2012, “Lower Maruyama River and the surrounding rice paddies” were added to the Ramsar List of Wetlands of International Importance.

Besides these, there are other Ramsar sites at lakes and marshes in Japan that are surrounded by large expanses of rice paddies that are making a significant contribution to biodiversity. In not a few cases, the lives of the waterfowl, fish and other species inhabiting these designated sites are also deeply connected with these surrounding rice paddies. Further designations of wetland sites that include the surrounding rice paddies would be a welcome trend in future.



Rice Paddy Target 12

Prevent the decline or extinction of threatened species inhabiting rice paddies, and restore those that are in decline.

Aichi Biodiversity Target 12 : By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved or sustained.

The intent of Aichi Biodiversity Target 12 is to prevent the extinction or further decline of known threatened species, and calls for thorough conservation measures to sustain or improve the status of those particularly in decline.

Among the creatures that inhabit rice paddies, a great many have been designated as threatened. Decisive measures for their protection are needed. Our target is to restore population numbers of threatened species inhabiting rice paddies to the point where they can be downlisted or removed from the Red List.

We must confirm which threatened species inhabit rice paddies based on the most current Red List. We must also manage rice paddies to enhance biodiversity so that com-

mon species that are not now threatened will not end up on the Red List.



Rice Paddy Target 13

Utilize rice paddies in such a way that healthy rice paddy ecosystems contribute to human health, livelihood and welfare.

Aichi Biodiversity Target 14 : By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Rice paddies contribute to human health, livelihood and welfare by being the means of production for good-tasting rice.

Rice paddy ecosystems also contribute to human well-being by their effectiveness in hands-on learning experiences for young people and socialization experiences for people with disabilities.

We have had various reports, for example on instances of self-isolated people enjoying improved interactions with society and of disabled people who are compelled to live very limited lives experiencing feelings of freedom as a result of rice paddy experiences. We should be making more use of the latent energies of rice paddies.



Rice Paddy Target 14

Restore at least 15% of degraded rice paddy ecosystems.

Aichi Biodiversity Target 15 : By 2020, ecosystem resilience and the contribution to carbon stocks has been enhanced through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Agricultural modernization that awards priority to profitability and efficiency has degraded most rice paddy ecosystems in Japan. Rice Paddy Target 14 calls for restoration of at least 15% of degraded ecosystems by 2020. The causes of rice paddy ecosystem degradation are many, but the main ones are rice paddy consolidation and the abandonment of rice paddy cultivation due to the aging of the farming population.

Japan's area of rice paddies in 2011 was 2.5 million ha, of which consolidated rice paddy land accounted for 1.55 million ha. In consolidated rice paddy land, all trees, meadows, and wetlands are eliminated to create large-scale farming blocks and channels are completely lined with con-

crete, resulting in ecosystems that are strikingly degraded compared to what was there before.

These ecosystems need to be restored by carrying out a comprehensive program of measures, such as re-vegetating inter-paddy embankments, regular regimes of temporarily drying out paddy soil, restoring flora and fauna to irrigation canals, ameliorating height differences, introducing compost, and flooding paddies during periods of non-cultivation in winter and summer.

In restoring abandoned rice fields to cultivation, care should be taken to provide for biological diversity.

Rice Paddy Target 15

On the local government level, draw up or revise existing local biodiversity strategies, or revise local basic environment plans, to include policy that will bring about the implementation of rice paddy biodiversity enhancement measures.

Aichi Biodiversity Target 17 : By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Japan's national biodiversity strategy defines the extent of the implementation authority of national-level administrative bodies such as the Ministry of the Environment, the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Land, Infrastructure, Transport and Tourism, etc., while the role defined for the national government with respect to actions taken within the authority of prefectural, municipal, township and village governments is to "promote" such actions.

Local biodiversity strategies fall under the authority of local governments, and play a complementary role by covering areas not dealt with in the national strategy.

Rice Paddy Target 15, which corresponds to Aichi Biodiversity Target 15, calls on local governments responsible for the relevant local administrative organs to bring about the implementation of measures for enhancing rice paddy biodiversity.

The biodiversity strategies of prefectural, municipal, township and village governments need to include clear language empowering rice paddy biodiversity enhancement that is based on the Aichi and Rice Paddy Targets; in particular, local strategies set up before adoption of these Targets need to be revised without delay.

Some strategies set up after the adoption of these Targets still have inadequate content. These should be revised, or measures to the purpose directly carried out in the very near future.

Municipalities, townships and villages incapable of setting up biodiversity strategies can include content aimed at enhancing rice paddy biodiversity in accordance with these Targets by revising existing basic environment plans, environmental management plans, etc., and carrying out appropriate measures.

Rice Paddy Target 16

Monitor the progress of national and local-level biodiversity strategies and action plans that have integrated Aichi Biodiversity Targets in order to ensure their implementation.

Aichi Biodiversity Target 17 : By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

It is all very well to adopt biodiversity strategies and action plans, but unless practical measures are actually carried out, rice paddy biodiversity will not be enhanced nor will the Aichi Biodiversity Targets be achieved. And, who is to take responsibility for such an outcome?

To ensure implementation of strategies and plans, progress management must be carried out every fiscal year.

During the progress management process, the actual situation must be clearly grasped and, if things are progressing as planned, the same budget can be allocated for the next

fiscal year, but if things are falling behind, measures such as more appropriate budgetary allocations will need to be applied in the following fiscal year. Progress management with the participation of citizens must be carried out every fiscal year.

Rice Paddy Target 17

Improve knowledge about and ways of confirming the present status and losses of rice paddy biodiversity and apply these nationally.

Aichi Biodiversity Target 19 : By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

In Japan, the overall status of the species of plants and animals that generally inhabit rice paddies and their inter-relationships have been determined, but present methods are still insufficient for confirming the status and losses of biodiversity in specific rice paddy environments in each locality. Ways to identify rice paddy biodiversity indicator species, etc., need to be improved and put to wider use.

The Ministry of Agriculture, Forestry and Fisheries is promoting a program to develop and apply evaluation criteria for biodiversity indicators in terms of their usefulness to agriculture. However these criteria are limited in scope, and cannot be applied to the overall biodiversity of rice paddies, which provide habitat to a large number of threat-

ened species.

Knowledge and ways of confirming facts about rice paddy biodiversity need to be improved and designed so that anyone can apply them.



Rice Paddy Target 18

Secure funds and human resources for carrying out policies that enhance rice paddy biodiversity.

Aichi Biodiversity Target 20 : By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

Implementing rice paddy biodiversity enhancement will require budgets for administrative organs, as well as working funds for Ramsar Network Japan's activities for the Rice Paddy Biodiversity Enhancement Decade project and for all the other individuals and organizations participating in the action plan.

To secure biodiversity-related governmental administrative budgets, society at large will have to be able to clearly see the actions being taken as well as the necessity for those actions. If sufficient funds are not secured, Aichi Biodiversity Target achievement will be delayed or remain unfulfilled, and this must be avoided.

Achievement of Rice Paddy Target 18 will require actions calling for secure annual budget appropriations for biodi-

versity related measures being undertaken by government administrative organs.

Funds for Ramsar Network Japan are expected to come from individual donations and grants.

Funds for the actions being taken by individuals and organizations participating in the action plan will have to be secured through a variety of means.

With respect to human resources for implementing biodiversity related measures by government administrative organs, society at large will also have to agree that the necessary human resources are being deployed; actions calling for addressing perceived insufficiencies may also be needed.