

**Advisory Council on the Environment  
Nature Conservation Subcommittee**

**Nature Conservation Management Agreement Project -  
Progress of Implementation of the Fishpond Management Agreement  
Projects in Northwest New Territories in 2015-2017**

**Purpose**

This paper updates Members on the latest progress of the implementation of the two Nature Conservation Management Agreement (MA) projects by the Hong Kong Bird Watching Society (HKBWS) in the Ramsar Site Priority Site and the Deep Bay Wetland outside Ramsar Site Priority Site in the Northwest New Territories.

**Background**

2. The fishponds located in the Northwest New Territories are the largest stretch of continuous and contiguous wetland remaining in Hong Kong. They are an integral part of the Mai Po and Inner Deep Bay wetland ecosystem of intrinsic ecological value, providing important feeding and roosting grounds for a diverse assemblage of bird species. Every year, around 50,000 – 80,000 waterbirds are recorded wintering in the Deep Bay area.

3. HKBWS in collaboration with the Hong Kong New Territories Fish Culture Association (HKNTFCA) has been conducting the MA projects in the fishponds in Deep Bay area to enhance the ecological functions of fishponds through wise use of the wetland, preserve traditional fish farming as local cultural heritage, increase the awareness on aquaculture and bird conservation in Deep Bay. Under the MA projects which have been supported by the Environment and Conservation Fund (ECF) since January 2012, fishpond operators are required to conduct annual drain-down of fishponds to provide more feeding opportunities for waterbirds. A management fee is granted to the operators who carry out the annual drain-down. HKNTFCA coordinates with eligible fishpond operators<sup>1</sup> to conduct drain-down in their fishponds throughout the year. Meanwhile, HKBWS conducts ecological surveys on the fishponds to provide up-to-date ecological information of the wetland habitats. HKBWS also conducts a wide range of public education programmes to

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<sup>1</sup> Eligible operators refer to operators of ponds that are registered under the Voluntary Registration Scheme of the Agriculture, Fisheries and Conservation Department (AFCD), and located within the Priority Sites.

arouse awareness in the conservation of fishponds. The project is a win-win solution to achieve bird conservation and local aquaculture while promoting the wise use of the wetlands.

4. To sustain the efforts in promoting conservation management of fishponds in the Deep Bay area after the completion of the 14-months pilot project from 2012-13, HKBWS submitted two applications to the ECF, namely “Fishpond Conservation Scheme in Ramsar Site 2013 – 2015” and “Hong Kong Got Fishpond - Eco-fishpond Management Agreement Scheme 2013 – 2015” covering the two Priority Sites “Ramsar Site” and “Deep Bay Wetlands outside Ramsar Site” respectively. With continuous support and participation by fishpond operators in the Deep Bay area, HKBWS submitted applications to the ECF again in November 2014 to continue the projects for a further two years from March 2015 to February 2017.

### **The Current MA Projects**

5. At the meeting of the Nature Conservation Subcommittee (NCSC) of the Advisory Council on the Environment (ACE) on 22 December 2014, the two applications, i.e. “Fishpond Conservation Scheme in Ramsar Site 2015-17” (Fishpond Conservation Project) and “Hong Kong Got Fishpond – Eco-fishpond Management Agreement Scheme 2015-17” (HK Got Fishpond Project) were supported by the ACE-NCSC and ACE-NCSC advised the following:

- (i) The HKBWS should demonstrate its utmost efforts in seeking alternative funding, including income-generating activities and private sponsorships, so as to achieve 5% contribution to the total budget;
- (ii) HKBWS should conduct education programmes for the fishpond operators so as to promote the sustainability of traditional fish-farming practices and to enhance their awareness on the importance of fishpond conservation;
- (iii) To better understand the awareness and behaviour change of fishpond operators and visitors towards fishpond conservation, the HKBWS should revise the questionnaire to understand the conceptual and behaviour change of fishpond operators and visitors in this project. HKBWS should submit the questionnaire for comment by NCSC;

- (iv) To further enhance the awareness on fishpond conservation of the general public, the HKBWS is advised to promote more activities and attract more public members to participate in the project;
- (v) HKBWS is suggested to further develop its volunteer programme with a view to raising the awareness of the public in nature conservation;
- (vi) HKBWS is advised to explore the listing of the traditional drain-down practice of fishpond as Intangible Cultural Heritage;
- (vii) The United Nations has declared 2015 the International Year of Soils (IYS). The IYS would serve as a platform for raising awareness on the importance of sustainable soil management as the basis for food, fuel and fibre production, provision of essential ecosystem functions and better adaptation to climate change for the present and future generations. HKBWS is advised to publicise the knowledge about the importance of sustainable pond soil management in this project. This shall include but not limited to the development of soil toxicity during fish rearing and subsequent drain-down measures to resolve the problem.

Recommendations (i)-(iii) and (v)-(vii) were applicable to both projects while (iv) was applicable to the HK Got Fishpond Project only.

6. Upon considering the views of the ACE-NCSC, the ECF granted a total of \$13,221,856 (\$6,614,888 and \$6,606,968 for the Fishpond Conservation Project and HK Got Fishpond Project respectively) to HKBWS for implementing the projects on a total of about 730 ha of fishponds for two years from March 2015 to February 2017. A summary of the two MA Projects and a map showing the areas of the two Priority Sites is in **Annex A**. HKBWS' responses to ACE-NCSC's recommendations above were provided to the AFCD and Environmental Protection Department (EPD) in June and August 2015 respectively. Their responses were subsequently reported to the ACE-NCSC at the meeting on 10 December 2015. HKBWS updated their responses as appended in **Annex B**.

### **Progress of the MA Projects**

7. A Fishpond MA Management Committee, comprising representatives of

HKBWS, HKNTFCA, AFCD, WWFHK and academia, meets quarterly to discuss matters regarding implementation of the two MA projects and monitor the project progress. Besides, HKBWS is required to submit progress reports with statement of accounts every six months to the ECF. Two progress reports covering the period March – August 2015 and September 2015 – February 2016 have been submitted and the projects were considered satisfactorily implemented so far.

8. A project summary was prepared by HKBWS at **Annex C** to report the implementation of the two MA projects. During the period from 1 March 2015 to 30 April 2016, 68 and 90 fishpond operators had been engaged in the Fishpond Conservation Project and HK Got Fishpond Project respectively. A total of 690 ha of fishponds in the Deep Bay area had been engaged in the projects for 2015-16, amounting to 94% of eligible fishponds<sup>2</sup> in the two Priority Sites. Ecological monitoring conducted by HKBWS showed that waterbird abundance increased significantly during the drain-down periods. In addition, various public engagement activities had been conducted, including the New Territories Fishpond Festival held in Tai Sang Wai in February 2016. Other events such as eco-tours, talks, exhibition, workshops and volunteer programme also helped promote public awareness of the ecological and cultural value of the fishponds in Deep Bay.

9. Results from the questionnaire surveys so far suggested that the participants of the eco-tours had better knowledge on waterbirds and fish farming after the tours. About 80% of the eco-tour participants, after joining the tours, strongly agreed / agreed that the MA projects enhanced the conservation of waterbirds. Over 70% and 90% of the participants from schools and general public respectively, after joining the tours, agreed they would be more concerned about the impacts of development on wetland / would support wetland conservation. Please refer to **Annex C** for further detail of the questionnaire surveys.

### **Advice Sought**

10. Members are invited to give views on the implementation and progress of the projects.

**Agriculture, Fisheries and Conservation Department**

**Environmental Protection Department**

**June 2016**

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<sup>2</sup> Eligible fishponds refer to fishponds with operators registered under the Voluntary Registration Scheme of the AFCD, and located within the Priority Sites.

**Annex A**

**Summary of the Management Agreement Projects**

	<b>The Fishpond Conservation Project</b>	<b>The HK Got Fishpond Project</b>
<b>Project Title</b>	Fishpond Conservation Scheme in Ramsar Site 2015 - 2017 拉姆薩爾濕地漁塘保育計劃 2015 - 2017	Hong Kong Got Fishpond - Eco-fishpond Management Agreement Scheme 2015 - 2017 香港有漁塘－生態漁塘管理協議計劃 2015 - 2017
<b>Site Involved</b>	“Ramsar Site” Priority Site for Enhanced Conservation	The “Deep Bay Wetland outside Ramsar Site” Priority Site for Enhanced Conservation
<b>Proponent</b>	Hong Kong Bird Watching Society (HKBWS) 香港觀鳥會	
<b>Size of Management Area (2015-16)</b>	323 ha engaged (out of 328 ha of the Priority Site)	367 ha (out of 405 ha of the Priority Site)
<b>Project Description</b>	This project aims at continuing to enhance the conservation value of commercial fishponds in the Northwest New Territories, especially for avifauna, through a partnership programme between HKBWS and local fishermen. Baseline ecological monitoring on various taxa groups is carried out to provide up-to-date information on the ecological value of the fishpond habitats.	In addition to enhancing the conservation value of commercial fishponds in the Northwest New Territories through a partnership programme between HKBWS and local fishpond operators, the project emphasises on raising awareness on local aquaculture and bird conservation in the Deep Bay area through an array of public education programmes.
<b>Key Conservation Objectives</b>	– To continue to enhance the conservation value of commercial fishponds in the Northwest New Territories;	

	<b>The Fishpond Conservation Project</b>	<b>The HK Got Fishpond Project</b>
	<ul style="list-style-type: none"> <li>– To maintain harmonious relationship between local fish farming and bird conservation;</li> <li>– To preserve the cultural heritage of the traditional practice of fish farming;</li> <li>– To provide up-to-date ecological information and formulate strategies for long-term ecological conservation in the area; and</li> <li>– To raise public awareness on the ecological value of fishponds. This is particularly emphasised in the HK Got Fishpond Project in which an array of public education activities have been carried out.</li> </ul>	
<b>Duration</b>	24 months (1 March 2015 – 28 February 2017)	
<b>Funding Approved</b>	\$6,614,888	\$6,606,968

**Figure 1. Boundaries of the two Priority Sites “Ramsar Site” (yellow) and “Deep Bay Wetland outside Ramsar Site” (green)**



**Annex B**

**HKBWS' Response to the Recommendations of the ACE-NCSC**

**1. Generate income to achieve 5% contribution to the total budget**

In order to increase the financial return of the projects, most of the education activities were fee-charging. In addition, a set of souvenirs had been produced and for sale to generate income for the projects. From March 2015 to April 2016, a total income of \$252,507 (about 69.5% of expected total income of \$363,500) had been generated from the two projects (\$132,911 from the Fishpond Conservation Project and \$119,596 from the HK Got Fishpond Project). In addition, alternative income of \$3,734 was obtained from sales of dried freshwater fish while product sponsorship of about \$20,500 was received from private companies. The total sum amounted to about 2.1% of the total approved budget.

HKBWS will organise extra activities when there are spare resources. HKBWS will work hard to seek alternative funding from private sponsorship so as to achieve 5% contribution to the total budget.

**2. Education programmes for fishpond operators**

A meeting with fishpond operators was organised in early March 2015 to report the result of the last MA projects and introduce the current project. Common birds seen in fishponds were also introduced to fishpond operators. A calendar showing photos of pond fish farming and wildlife found in fishponds was produced and sent to fishpond operators in January 2016. The messages of fishpond conservation and the cultural value of local aquaculture were conveyed through the calendars. Some fishpond operators and local communities were engaged in education activities to share their experience and stories to the participants. Through such engagement, the fishpond operators and local communities understood more about the conservation purpose of the projects.

**3. Questionnaires for fishpond operators and participants**

As reported to the ACE-NCSC at the meeting on 10 December 2015, HKBWS prepared 3 sets of questionnaires in consultation with Dr. Eric Tsang for eco-tour participants, volunteers and fishpond operators. 826 questionnaires (pre-tour plus post-tour) for eco-tour participants had been distributed from August 2015 to February 2016 (please refer to **Annex C** for more details). Interviews with fishpond operators began in spring 2016 and the result is not yet available. Regarding the questionnaires for volunteers, the volunteers should fill out a questionnaire before joining the volunteer work and another one after

completing 18 hours of volunteer service. As only a few volunteers have completed the 18-hour volunteer service, the result of the questionnaire survey is yet to be available.

#### **4. Promote more activities to and participation from the general public**

Social media (including Facebook and the HKBWS Forum) had been used to promote the activities organised under the projects. Also, HKBWS cooperated with organisations / companies such as the Hong Kong Professional Teachers' Union and Joint Publishing to organise eco-tours and night safari. Famous photographers were invited to give a talk on nature photography. Activities were promoted to members of these cooperating organisations / companies who may not be reached through our regular promotion channels.

#### **5. Further develop volunteer programme**

Extra training and activities were organised for existing volunteers to strengthen their bonding as well as to deepen their knowledge on the ecology of Hong Kong. In addition, a new batch of 67 volunteers had been recruited and trained in December 2015. Free basic training including a lecture and a half-day field trip were provided to the new recruits on 6 December 2015. Volunteers were involved in different kinds of voluntary work after the training day, such as providing assistance and interpretation in the education kiosk and eco-tour.

#### **6. Explore listing the traditional drain-down practice of fishpond as Intangible Cultural Heritage**

HKBWS sought advice from Prof. Sidney Cheung of the Chinese University of Hong Kong about listing the traditional drain-down practice of fishpond as Intangible Cultural Heritage (ICH). It was found that freshwater fish farming had already been listed in the Hong Kong ICH inventory maintained by LCSD (#5.93). HKBWS is separately conducting an oral history project on pond fish farming in the Northwest New Territories which involves detailed documentation of pond fish farming and interviews with fishpond operators. It is expected that the outcome of the project would promote the appreciation of pond fish farming as local cultural heritage.

#### **7. Publicise the knowledge about the importance of sustainable pond soil management**

Exhibition panels introducing the International Year of Soil (IYS) and soil in fishponds were produced in December 2015. The IYS, importance of soil, global threats of soil, importance of conservation with Long Valley as case study, and the relationship between soil and pond fish farming were introduced. The panels were displayed in public exhibition

and as regular display at the education kiosks in Nam Sang Wai. The softcopy was also available online in the forum and Facebook of HKBWS, as well as the project's blog.

**Summary of Progress of Fishpond Management Agreement Projects**  
**From 1 March 2015 to 30 April 2016**

Objectives and Goals

- To enhance the conservation value of commercial fishponds, especially for avifauna, in the Ramsar Site and Deep Bay Wetland outside Ramsar Site;
- To continue the collaboration with local fishermen and the Hong Kong New Territories Fish Culture Association (HKNTFCA) to implement fishpond management measures;
- To monitor the effectiveness of conservation measures so as to enhance better management of the fishponds. Waterbird surveys and baseline studies had been conducted to fill information gaps and provide up-to-date ecological information;
- To increase public awareness and participation on wetland conservation through various on-site and off-site education activities;
- To demonstrate the concept of wise-use of wetlands with the involvement of local stakeholders and communities.

Habitat Conservation and Management

With full support from the HKNTFCA, about 90% of the eligible fishpond operators are engaged in the projects as partners to carry out fishpond management work. Communication and partnership between HKBWS and fishpond operators have been strengthened which facilitated implementation of the management measures.

**Table 1. Summary of the two MA projects during 2015-17**

	2015-16			2016-17 (up to 30 April 16)		
	The Fishpond Conservation Project	The HK Got Fishpond Project	Total	The Fishpond Conservation Project	The HK Got Fishpond Project	Total
<b>Total no. of eligible fishpond operators*</b>	73	101	166	71	101	162
<b>No. of engaged fishpond operators [% of participation]</b>	68 [93.2%]	90 [89.1%]	149 [89.8%]	68 [95.8%]	90 [89.1%]	147 [90.7%]
<b>Total area of eligible fishponds# (ha)</b>	328.4	405.3	733.7	290.5	371.2	661.7
<b>Area of engaged fishponds (ha) [% of eligible fishpond area]</b>	323.4 [98.5%]	366.9 [90.5%]	690.3 [94.1%]	285.6 [98.3%]	331.8 [89.4%]	617.4 [93.3%]
<b>Area of drained fishponds (ha) [% of engaged fishpond area]</b>	291.0 [90.0%]	319.0 [87.0%]	610.0 [88.4%]	45.9 [16.1%]	21.9 [5.9%]	67.8 [10.2%]
<b>Area of fully drained fishponds (ha) [% of engaged fishpond area]</b>	117.5 [36.3%]	90.8 [24.7%]	208.3 [30.2%]	13.4 [4.7%]	6.6 [2%]	20 [3.2%]

\*Fishponds within the Priority Sites which have been registered under the AFCD's Voluntary Registration Scheme

#The reduction of total area of eligible fishponds in 2016-17 was due to resumption of about 71ha of fishponds in Fung Lok Wai by the land owner. Those fishponds were withdrawn from the AFCD's Voluntary Registration Scheme.

### Waterbird Monitoring

Waterbird surveys had been conducted in selected drained fishponds. In each project site, 36 and 12 fishponds were selected for regular and intensive waterbird surveys respectively.

Since the commencement of the MA projects in the Deep Bay area in January 2012, a cumulative of 82 bird species have been recorded utilising drained fishpond during the waterbird monitoring surveys, in which four species are globally threatened: Black-faced Spoonbill (Endangered, EN), Great Knot (EN), Nordmann's Greenshank (EN), Greater Spotted Eagle (Vulnerable). The critically endangered Spoon-billed Sandpiper was recorded in drained fishponds outside the surveys. The sightings indicated that those globally threatened birds also utilise the fishpond as feeding and/or temporary roosting sites.

Statistical analysis of the survey findings from 2012 to 2016 indicated that there were higher abundance and species richness of all bird groups during the drain-down compared to before the drain-down (**Table 2**), except for Gulls, Terns and Starlings where the increase during drain-down was not statistically significant. Proportion of exposed bottom of fishponds influenced the abundance and species richness of Ardeids, Spoonbills, Shorebirds and Kingfishers positively; but influenced the abundance of Grebes, Cormorants and Rails negatively. Diving (e.g. cormorants and grebes) and fishing birds (e.g. kingfishers) showed increased abundance in the drained fishponds as prey fish were trapped in a smaller volume of water which allowed a greater feeding success. Similar pattern was observed for ardeids, spoonbills, shorebirds, crows and raptors. While crows and raptors were not strictly piscivorous, they were mostly attracted by dead fish in the drained fishponds. Bird abundance reached a maximum when fishponds were fully drained to expose the bottom. Wading birds such as egrets, herons and spoonbills tended to be attracted by fully-drained fishponds. Conversely, diving and fishing birds were shown to avoid fully-drained fishponds which became unfavourable for them to forage.

**Table 2. Waterbird abundance in February 2012 - February 2016**

	<b>Before Drain-down</b>	<b>During Drain-down</b>
Mean abundance per fishpond*	6	122
Mean no. of waterbird species per fishpond	1	9
No. of waterbird species in all fishponds	38	68
Mean abundance of Grebes per fishpond	0.45	0.52
Mean abundance of Cormorants per fishpond	1.43	2.82
Mean abundance of Ducks per fishpond	0.04	0.57
Mean abundance of Ardeids per fishpond	2.98	86.48
Mean abundance of Spoonbills per fishpond	0.02	4.30
Mean abundance of Rails per fishpond	0.10	0.78
Mean abundance of Shorebirds per fishpond	0.23	12.44

	<b>Before Drain-down</b>	<b>During Drain-down</b>
Mean abundance of Kingfishers per fishpond	0.13	0.81
Mean abundance of Collared Crow <sup>#</sup> per fishpond	0.05	0.93
Mean abundance of Raptors per fishpond	0.02	0.22

\*The total number of fishponds surveyed is 468.

<sup>#</sup>Collared Crow is the only species of its group (crows) that is wetland-dependent.

Little Egret which occurs in large numbers in wetland, Great Egret which is of regional conservation concern and Black-faced Spoonbill which is listed as Endangered in the IUCN Red List of Threatened Species, are selected as indicators for effective adaptive management (**Table 3**). The benchmark of each species are calculated by taking the mean abundance of birds per hectare of fishpond from ten years of data recorded in fishponds as extracted from the Waterbird Monitoring Programme (from March 2006 to September 2015). The figures in “Drained Fishponds” refer to the mean abundance of birds per hectare in drained fishponds during March 2015 – February 2016. It was revealed that bird density (number of individuals per hectare) of the selected indicator species was significantly higher in drained fishponds than that of the benchmark, hence the management measures were considered effective.

**Table 3. Benchmark of Indicator Species (Mean no. of individuals per hectare)**

	<b>Benchmark* (Dry Season/Wet Season)</b>	<b>Drained Fishponds* (Dry Season/Wet Season)</b>
Great Egret	0.64 / 0.37	45.58 / 48.93
Little Egret	0.35 / 0.19	25.88 / 20.90
Black-faced Spoonbill	0.04 / 0.00	4.63 / 1.92

\*Rounded to 2 sig. fig.

### Ecological Baseline Studies

#### *Species Surveys*

In order to gain better understanding of the integral ecological importance of the fishpond areas, ecological baseline surveys for various taxa, including birds, herpetofauna and odonata, has been conducted to collect the spatial and temporal population data in the fishpond areas in Deep Bay. Similar biodiversity monitoring has been conducted since the previous MA projects beginning in March 2013.

From March 2013 to February 2016, a total of 197 bird species, 28 herpetofauna species, 34 odonata species and two firefly species had been recorded during baseline surveys and casual observation. Among the species recorded, 104 bird species, seven herpetofauna and one odonata species are of conservation concern (i.e. listed on the IUCN Red List of Threatened Species 2015, Fellowes et al (2002), Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora or China State Key Protected Animals), in which 18 species are listed on the IUCN Red List of Threatened Species 2015 including:

Critically Endangered:	Spoon-billed Sandpiper
Endangered:	Black-faced Spoonbill, Yellow-breasted Bunting
Vulnerable:	Common Pochard, Eastern Imperial Eagle, Greater Spotted Eagle, Japanese Yellow Bunting, Burmese Python, Chinese Soft-shelled Turtle
Near Threatened:	Eurasian Curlew, Falcated Duck, Grey-tailed Tattler, Japanese Quail, Red Knot, Red-necked Stint, Collared Crow, Alexandrine Parakeet, Four-spotted Midget

#### *Vegetation Cover of Pond Bund*

The study on relationship between vegetation cover of pond bunds and bird abundance was done by recording the bird species and number of individuals on each type of bund substrate (e.g. bare ground, grass, reed, shrub and artificial structures) in a total of 12 vantage points. A total of 7 bird surveys had been conducted at each vantage point from March 2015 to February 2016. Bird abundance was found extremely low on reed which was therefore excluded in the analysis. The findings showed that fewer birds were observed in bare ground when compared to artificial substrates such as wire and buildings.

#### Community Participation, Education and Publicity

Various education activities had been organised including eco-tours, night safari, various workshops, fishpond festival, education kiosk, talks and exhibition, etc. so that more people could get in touch with fishpond and fishermen (**Table 4**). Participants were able to understand more about the ecology and conservation of fishponds as well as local freshwater fish culture via all those education activities. Fishermen had been engaged in many of the activities to share their experience, stories and the operation of fishpond with the participants.

**Table 4. Summary table showing participant numbers of various education activities**

	<b>Programmes</b>	<b>Target no.</b>	<b>Total no. (as at 30/4/2016)</b>	<b>Completion Percentage</b>
<b>The Fishpond Conservation Project</b>	Eco-tour (school)	1,200	698	58%
	Teacher workshop	50	25	50%
	Fishpond Festival Carnival	600	350	58%
	Public and School Exhibition	85,000	54,243	64%
	School Talk	2,250	2,655	118%
<b>The HK Got Fishpond Project</b>	Education Kiosk*	>24,000	15,400	64%
	Eco-tour (public & corporate)	600	494	82%
	Night Safari	250	225	90%
	Workshops (Art and photography)	80	43	54%
	Fishpond Operation Experiencing Workshops	68	40	59%
	Volunteer Scheme	60	67	112%
	Eco-tour guide training	25	25	100%
<b>Total no. of participants</b>		<b>114,183</b>	<b>74,265</b>	<b>65%</b>

\*Excluding visitors reached via daily exhibition

#### *Volunteer Scheme*

The volunteer scheme established in the previous MA projects for 2013-15 has been continued. In response to the recommendations from the ACE-NCSC on further developing the scheme, extra training and activities had been organised for existing volunteers to strengthen their bonding as well as to deepen their knowledge on the ecology of Hong Kong. In addition, a new batch of 67 volunteers were recruited and trained in December 2015. 44 of them were recruited from general public and 23 of them were recruited from eco-tour guides. Volunteers were involved in different kinds of services and voluntary works after the basic training, such as providing assistance and interpretation in the education kiosk and eco tour. They are required to serve for 18 service hours after the training in order to become an accredited volunteer.

#### *Eco-tour Guide Training, Eco-tours and Night Safari*

An eco-tour guide training was organised with 26 participants recruited. Participants were required to pass both the written test and field test in order to advance to the practical

training of guiding eco-tours. All of them passed the evaluation and 25 of them completed the practical training.

From March 2015 – April 2016, a total of 698 students, parents and teachers had joined the school eco-tours while 488 general public had joined the public eco-tours. For night safari, 225 participants had joined. A total of 826 pre-tour and post-tour questionnaire surveys had been conducted for the participants of the eco-tours and night safari tours from August 2015 to February 2016. In terms of knowledge, there was an average of 14% increase in giving correct answers to the test questions in the questionnaire after joining the tour (increased from 68% pre-tour to 82% post-tour). The question concerning freshwater fish species cultivated in fishponds had the greatest difference with a 28% increase in having correct answers (increased from 56% pre-tour to 84% post-tour). Besides, 50% of the participants opined they would increase the consumption of local pond fish to support local pond fish farming. 77% of the participants strongly agreed or agreed that they would pay more attention to development projects in wetland and support wetland conservation.

#### *Education Kiosk*

The education kiosk and regular display boards in two sites in Nam Sang Wai set up in the previous MA projects were continued and maintained so that visitors could access fishpond-related information. In some weekends, game booths and bird watching station were set up, and exhibition interpretation was provided. Over 15,400 visitors visited the education kiosk. Participants and visitors not only showed great interest and actively participated in all the activities, many of them, for the first time, understood that fishpond had high ecological value.

#### *Fishpond Festival*

Since 2014-15, Fishpond Festival has been organised as an annual event of the projects. Landscape of Inner Deep Bay was selected as the theme of the second Fishpond Festival in 2015-16. A series of activities including eco-tour, photographic talk and workshop had been organised to promote the beauty of Inner Deep Bay. Highlight of the Festival was a carnival held on 24 January 2016 in Tai Sang Wai in collaboration with the Tai Sang Wai Village. The Director of Agriculture, Fisheries and Conservation was the officiating guest of the kick-off ceremony. 74 volunteers and about 30 local villagers assisted in the event, and 350 participants joined the activities. Questionnaire surveys were conducted during the Fishpond Festival carnival. 80% of the participants strongly agreed or agreed that the activities enriched their knowledge on wetland conservation. 93% of the participants

strongly agreed or agreed that after joining the activity, they were willing to protect the environment and support local pond fish farming.

#### *Exhibition and School Talks*

In order to promote local pond fish farming, wetland ecology and conservation, exhibition had been arranged in public venues and schools, and talks had been offered to schools. From March 2015 to April 2016, 2,655 students had attended the school talks and 54,243 visitors had been reached via school and public exhibition.

#### *Workshops*

Various workshops had been organised in order to attract the general public with different background and interests. A teacher workshop, a photography workshop and two experience workshops had been organised in March 2015 – April 2016, with a total of 108 participants joining the workshops.

#### *Education Programmes for Fishpond Operators*

In response to the recommendations of the ACE-NCSC, a meeting with fishpond operators was organised in early March 2015 to report the result of previous projects and the content of the current project. Common birds seen in fishpond area were also introduced to the fishpond operators. In addition, a calendar with conservation messages, showing photos of pond fish farming and wildlife found in fishponds, was published and distributed to the fishpond operators in early 2016. Besides, by involving fishpond operators and local communities in education activities, they would know more about the importance of fishpond conservation, hence raising awareness on local freshwater fish culture and fishpond conservation.

#### *Publication and Publicity Materials*

- 5,000 copies of fishpond eco-tour self-guided map were produced and distributed to the general public during their visits to the public exhibition, education kiosks and HKBWS office. The softcopy is also available online.
- In response to recommendations by ACE-NCSC, a set of exhibition panels on soil was produced. The International Year of Soil, importance of soil, global threats of soil, importance of conservation with Long Valley as case study and the relationship between soil and pond fish farming were introduced. The panels were displayed in

public exhibition and as regular display at the education kiosks. The softcopy is also available online.

- Posters, banner and advertisement were made to promote various activities. In addition, a short film was also made and shown on RoadShow in November 2015 to promote the ecological and cultural value of fishponds and local pond fish farming.

### Project Sustainability

In order to increase the financial return of the projects, most of the education activities were fee-charging. In addition, a set of souvenirs had been produced and sold to generate income for the projects. From March 2015 to April 2016, a total income of \$252,507 (about 69.5% of expected total income of \$363,500) was generated from the two projects (\$132,911 for the Fishpond Conservation Project and \$119,596 for the HK Got Fishpond Project). In addition, alternative income of \$3,734 was obtained from sales of dried freshwater fish while product sponsorship of about \$20,500 was received from private companies. The total sum amounted to about 2.1% of the total approved budget.

HKBWS will organise extra activities when there are spare resources. HKBWS will work hard to seek alternative funding from private sponsorship so as to achieve 5% contribution to the total budget.