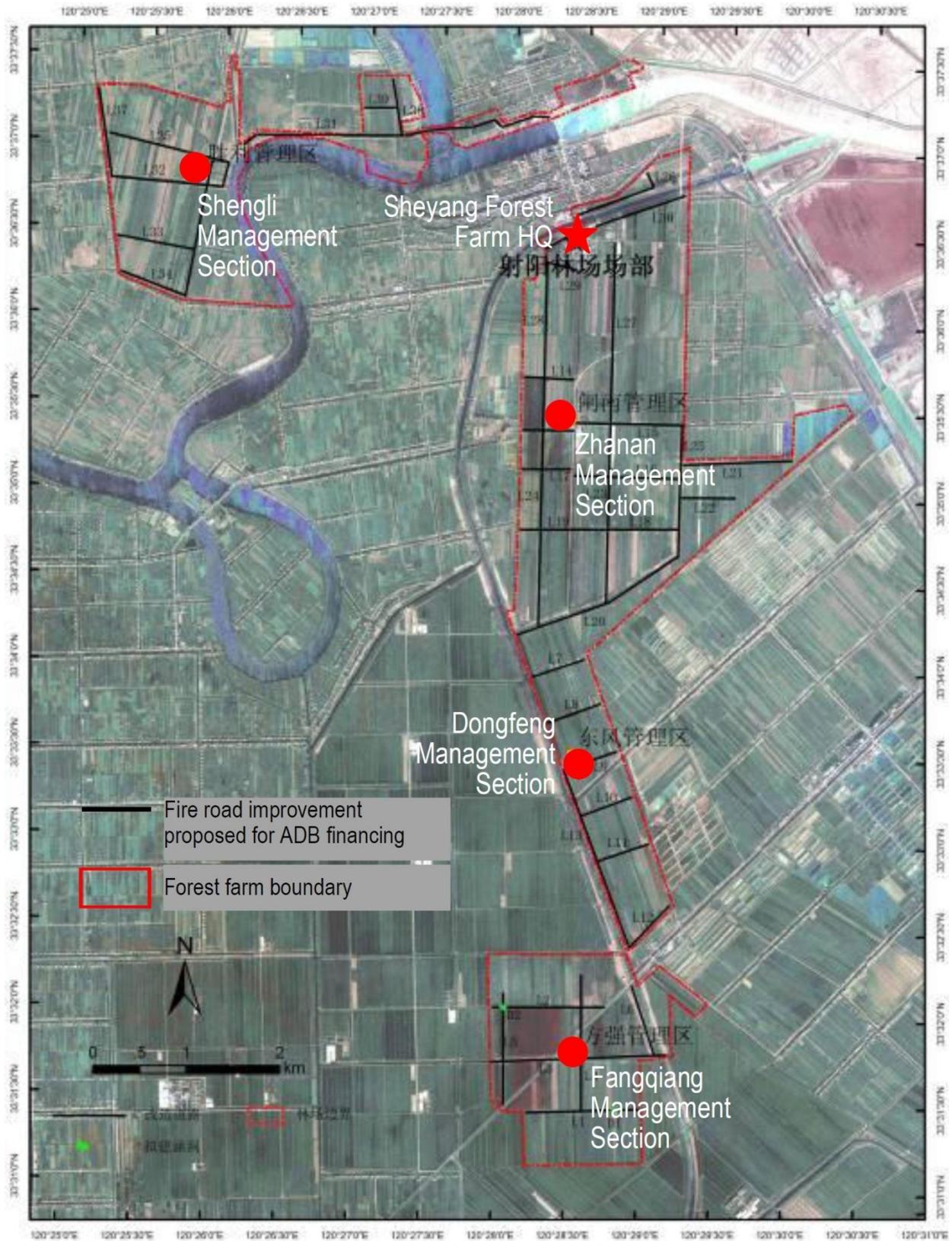


Figure A2-27: Layout of the Reformed Fire Roads in SFF



58. **Integrated Pest Management.** Integrated pest management system will be established to prevent plant diseases. This component will mainly purchase equipment such as smoke machine, Insecticidal lamp, and office facilities, etc.

5. Dafeng Forest Farm Component

59. Situated in the coastal zones of the Yellow Sea, the Dafeng Forest Farm is an integral part of the wetland and forest ecosystem. Within the forest farm, there are 264 plant species, most of which are salt-resistant species that form part of the rich biodiversity of the coastal wetlands. The world's first Milu breeding and naturalization nature reserve was established, with the support from WWF and approval by the SFA, by allocating 500 ha of the forest farm for that purpose, which was later upgraded and became what is now known as the DMNNR. Thirty nine Milu were initially released and have now propagated to more than one hundred. In 2004, the Jiangsu Provincial Forestry Bureau approved the designation of the Dafeng Forest Farm as a provincial forest park.

60. The component attempts to restore and strengthen the ecological function of Dafeng Forest Farm and coastal wetland, and improve the soil environment of surrounding land to create conditions for vegetation recovery, and thereby enhance the capability of defense against natural disasters, conserve wildlife of Yancheng wetland, ensure ecological safety of Dafeng coastal area, and promote sustainable development of economy and society.

61. The proposed interventions under the Dafeng Forest Farm component include:

62. **Coastal wetland protection forest improvement.** The coastal wetland protection forest improvement interventions will be conducted in north part of the forest farm through a series of forest tending measures to improve forest quality and system stability. The forest land involved in tending and optimization activities total 860 ha, including timber forest mainly based on poplar and metasequoia and seedling forest mainly about *taxodium ascendens*, java bishopwood, ginkgo, *Koelreuteria bipinnata* and Japanese cedar. According to the actual situation of the forest, the principal intermediate cutting method is moderate thinning, that is cutting down trees which are densely and poorly grow. The moderate thinning aims at 7 years older (include 7years) poplar and metasequoia in dense areas and a part of java bishopwood and *koelreuteria bipinnata* (Figure A2-28). On the contrary, for sparse forests, enrichment planting will be properly implemented to further perform forest's function of breaking winds and promoting regional ecological environment (Figure A2-29).

Figure A2-28: Distribution Map of Intermediate Cutting for DFF

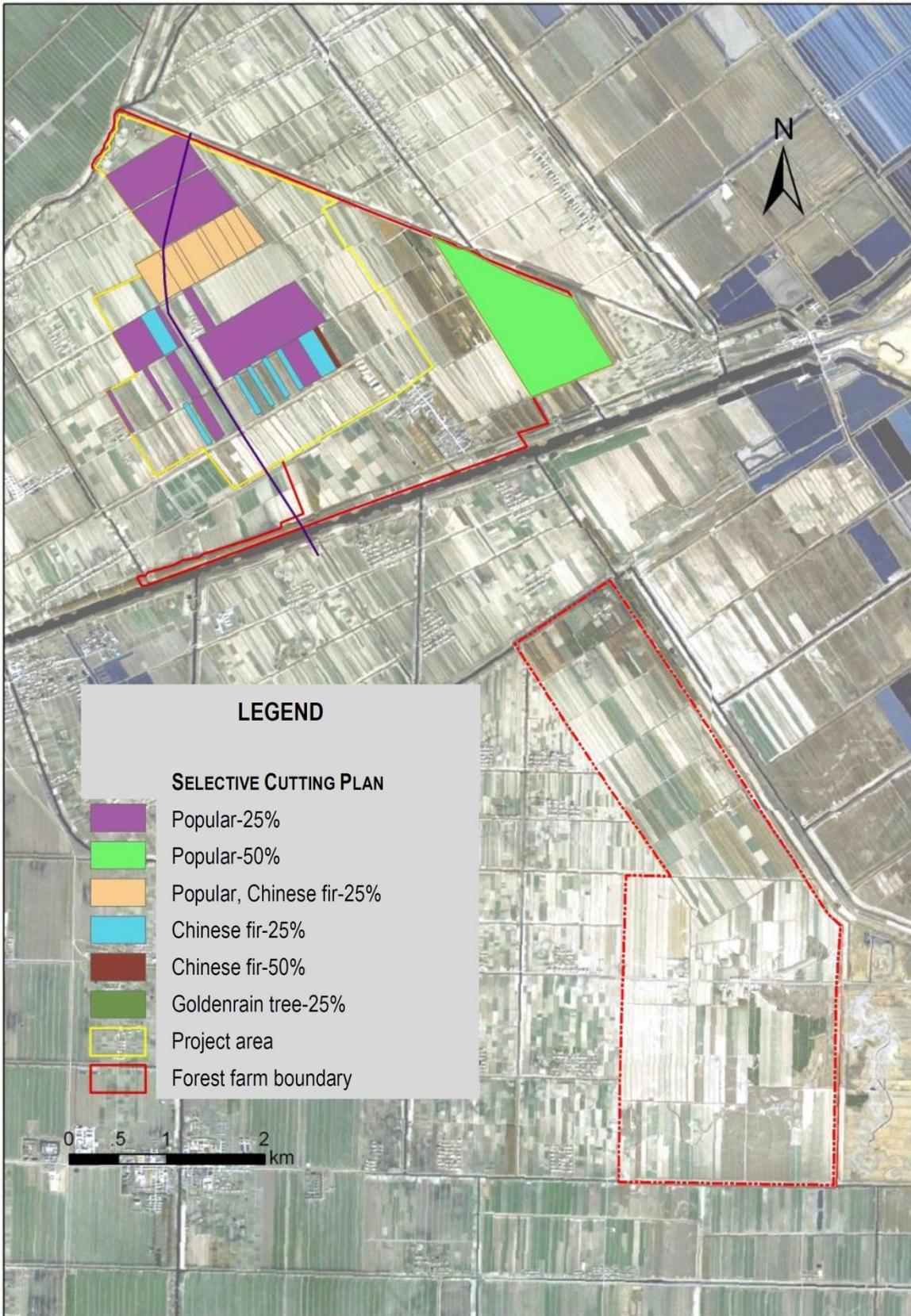
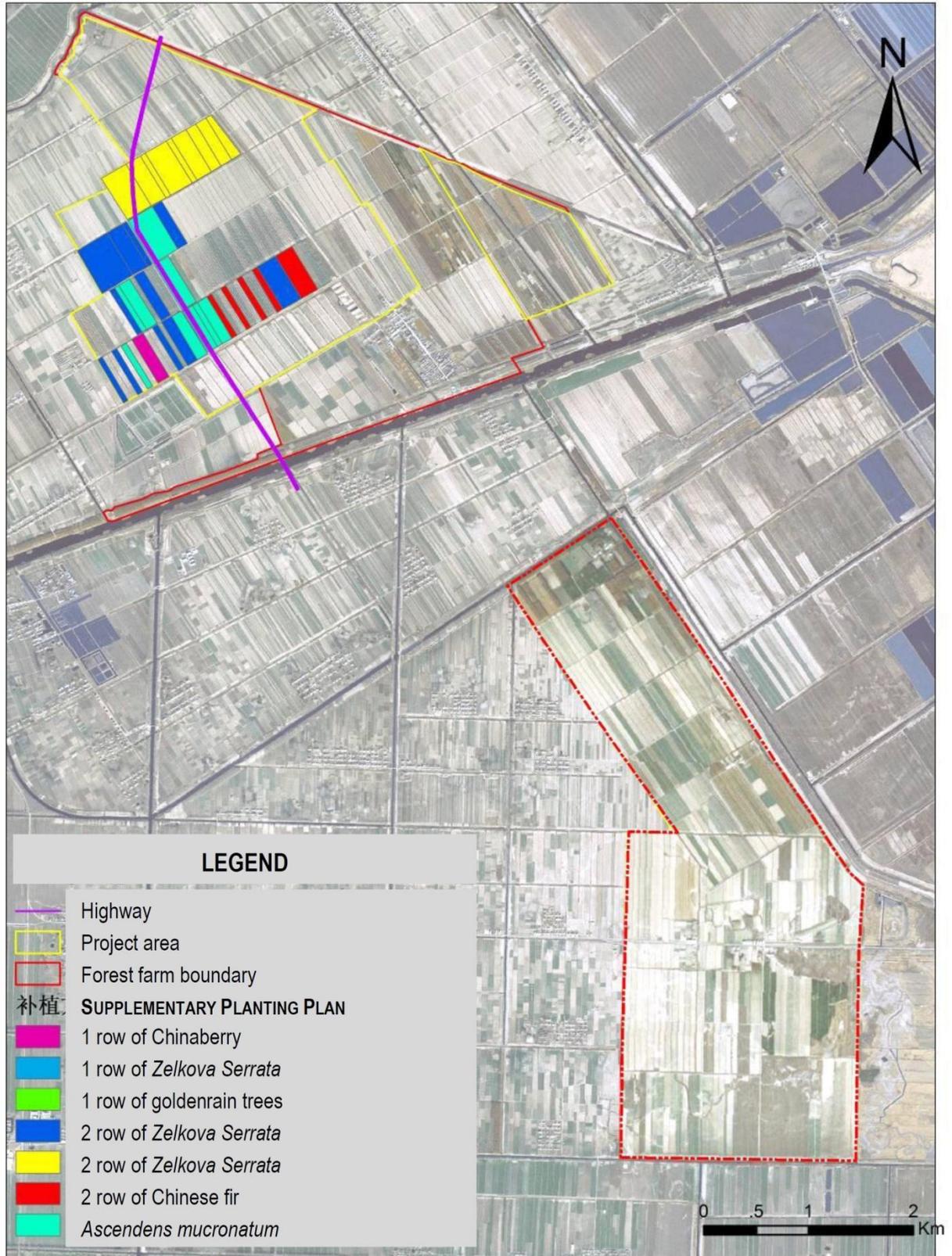


Figure A2-29: Distribution Map of Enrichment Planting in DFF



63. **Coastal wetland restoration.** Aiming at the 122.7 ha coastal wetland sited in the east of Dafeng Forest Farm, by ecological engineering measures, the component will restore habitat gradient that regards reed and suaeda glauca, rebuild imperata cylindrical community as the habitat of *Hydropotes inermis*, dredge in the 8 km-long branch canals, and protect ecosystem integrity and biodiversity of the typical coastal intertidal. The detailed designs are provided in Figure A2-30 and Figure A2-31.

64. This component will include two pump stations, one for drawing and one for drainage. The drawing pump will diverse fresh water from the Chuandonggang River into coastal wetland area in dry season, while the drainage pump drain water out to maintain wetland habitat.

Figure A2-30: Topographic Design of Wetland Restoration Area in DFF



Figure A2-31: Vegetation Cover in Target Area after Restoration in DFF



65. **Drainage improvement.** Considering the sedimentation of the canals in the project area, 11 rivers and 7 canals will be dredged and rehabilitated to fulfill irrigation and drainage requirements. The total length reaches 174 km. The layout of dredging rivers is shown in Figure A2-32. The engineer will be conducted by Sikorsky-amphibian-type excavator, in dry season. The total earthwork will be 768,823.8 m³, of which 342,832.9 m³ will be used to enhance river banks, 59,671.3 m³ fill for the fire road, and others used as backfilling compost.

66. **Forest fire prevention and response capacity improvement.** The protection infrastructure includes 20.9-km fire roads, fire engines, and the surveillance system includes security equipment and facilities, and fire warning and response system. The fire road will include 1.4km of Forest I Level road with design speed of 50km/h, 12.9 km of Forest III Level road with design speed of 30km/h, 6.6km of Forest IV Level road with design speed of 20km/h, and 2 bridges. The layout is shown in Figure A2-33.

67. **Integrated pest management.** Integrated pest management system will be established to prevent plant diseases. This component is mainly about purchase equipment such as smoke machine, Insecticidal lamp, and office facilities, etc.

6. Project Management and Capacity Development Component

68. This component is to ensure the implementation of the whole project. It will establish PMOs and make them operational by 2011, including at least 30% representation by women. It also includes 8 person-months of international consultancy, and 33 person-months of national consultancy provided by 2017, 100 persons trained by 2013 (at least 30% are women), 30% of construction labour and 50% of operational jobs provided to women.

APPENDIX 3: COMMENTS FROM WETLANDS INTERNATIONAL-PRC OFFICE

(Original in Chinese Language, Followed by English Translation)



湿地国际—中国办事处

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江苏省盐城和大丰自然保护区湿地 保护工程项目评价意见

江苏盐城和大丰国家级自然保护区是我国最大的海岸湿地保护区，也是国家一级保护动物丹顶鹤最重要的越冬地、麋鹿返乡最大种群保护区，区内生物物种多样，生物资源丰富，但由于人口的增加和生产活动的加剧，湿地生态系统完整性遭到破坏，海岸带生态严重退化，生物入侵影响显著，物种多样性降低，因此，急需实施湿地保护与恢复等工程以缓解湿地退化的压力。

2009年6月，国务院常务会议讨论并原则通过了《江苏沿海地区发展规划》，江苏沿海开发正式上升到国家战略层面，成为具有全局意义的国家战略。

“江苏盐城和大丰国家级自然保护区湿地保护项目”涵盖整个江苏盐城湿地，重点项目区位于核心区和中实验区，工程实施有利于保护和恢复海涂湿地生态系统结构完整性和湿地生境原始风貌，提高保护区高管理水平，属于生态环境修复类项目，并带有科学研究、探索性质。本项目实施后的生态、环境效益较显著，有助于促进盐城沿海滩涂湿地生态系统良性循环、生物多样性的恢复和稳定、改善当地林木结构、保障区域生态安全。同时，保障沿海地区发展战略的实施。因此，本项目与《江苏沿海地区发展规划》相符。建设总体符合《中华人民共和国自然保护区条例》、《全国湿地保护工程实施规划(2005-2010)》、《中国湿地保护行动计划》、《江苏省重要生态功能区区域规划》、《江苏沿海地区发展规划》等相关政策、规划的要求。

一、盐城国家级自然保区

本项目是一项生态环境修复与综合整治工程，湿地恢复与重建、引水补湿、退渔还湿、互花米草控制、能力建设等重点工程实施后的生态、环境效益显著，工程设计理念及方法具有较高的科研示范价值，促进保护区生态系统良性循环、生物多样性的恢复和稳定，同时有助于传播生态文明建设理念，开展科普教育，提高环境保护意识，可研提出的建设目标基本可达。

(1)通过引水、退渔、湿生植被种植等措施可以有效改善保护区局部区域内的鸟类生境，恢复与重建鸟类适宜生境，通过湿地的恢复与重建可为丹顶鹤等鸟类补充提供约 3043hm² 适宜生境，新增适宜生境可以满足相当数量的丹顶鹤栖息、觅食的需求；

(2)重建和恢复后的湿地生态系统固定的氮磷钾总量增加。本工程结合国内外研究人员的研究结果，拟通过引淡水，结合海洋潮汐控制淡水和海水的轮换进出，探索抑制互花米草的生长方法，是互花米草控制的重要试点工程，为全保护区互花米草控制提供现场试验、技术研究和

试点示范，对全国范围互花米草控制将提供重要的技术储备和经验积累。

(3) 通过保护工作站、湿地监测站、鸟类观察站、气象观测站，研究中心、生态隔离带等建设以提高整个保护区湿地管护、监测、研究及系统管理能力，实现湿地生态保护、生态定位监测、湿地科普教育一体化，使其成为全国沿海滩涂湿地生态恢复及珍稀保护的国家优秀保护区。

工程在施工阶段很有可能出现由于土地占用、土方开挖、物料运输及机械作业等会造成项目区及周边附近区域植被破坏、水土流失，并会对在此栖息、觅食的保护物种造成影响。因此，我认为可以通过加强施工期管理，尽量避免鸟类迁徙期、特别是丹顶鹤的越冬期，尽量缩短施工期，尽可能利用原有建筑和设施，加强施工人员的保护意识培训，制定救护方案，在施工期开展人工补饲等一系列措施来降低施工期的不利影响。

项目的风险主要来自两方面：一是植被恢复过程中引入外来物种时存在的生物入侵风险；二是互花米草控制示范工程预期效果的不确定性。根据我国第一批和第二批外来入侵物种名录，本项目设计选种的植物种类以乡土物种为主，无外来入侵种，因此，本项目发生外来物种入侵的风险较低。本项目的互花米草控制示范工程是一种试验性研究工程，实现预期效果存在一定的不确定性。但项目区周边互花米草广布，即使工程实施后未能达到控制效果，也不会对保护区生态系统产生不利影响，生态风险较小。

总之，江苏盐城国家级珍稀自然保护湿地保护项目建设将会有效促进滨海湿地生态与综合效益的发挥，促进滨海湿地的生态环境逐步好转。实施江苏盐城国家级珍稀自然保护湿地保护项目建设，生态、环境效益显著，有助于促进盐城沿海滩涂湿地生物多样性的恢复和稳定、改善当地生态环境、保障区域生态安全。

二、大丰国家级自然保护区

江苏大丰麋鹿国家级自然保护区（以下简称“麋鹿保护区”）由原国家林业部与江苏省人民政府合建，承担着麋鹿野生种群恢复、沿海湿地生物多样性保护的重要任务。自1986年建区以来，经各方艰苦努力，保护区在麋鹿种群恢复与湿地保护方面取得了瞩目的成绩，在国内外濒危物种拯救保护界享有极高的良好声誉，2002年被列为国际重要湿地，湿地国际确认为全国湿地科普教育示范区，是林业系统国家级示范保护区，国家环保部、科技部联合确定的“全国环保教育基地”。

近年来，随着麋鹿种群数量不断增长，保护区发展面临着麋鹿栖息地湿地生境退化、管护设施与能力落后等问题。为积极有效应对发展中出现的问题，麋鹿保护区申请亚行贷款支持实施湿地生态保护，这对自然保护区的发展是极其有力的。该项目的顺利实施，必将改善保护区的管理巡护条件，改善保护区的生态环境，提高保护区对外宣传教育的能力，提高保护区的科研、救护能力，大幅提升保护区管理水平，促进沿海国际重要湿地保护。

大丰麋鹿保护区是世界上最大规模的麋鹿保护区，拥有世界上最大的野生麋鹿种群，该地对于麋鹿这一失而复得的珍稀物种而言具有重大的意义。

据了解，麋鹿保护区在 1997 年晋升国家级之前就已建成行政管理区、生态旅游区和科普宣教区并发挥了重要作用。申请晋升为国家级自然保护区时，区内土地、生态旅游、工作、生活区等全部被划为了核心区，而 1994 年 9 月颁布实施的《中华人民共和国自然保护区条例》规定严格限制在核心区活动。为了解决历史原因导致制约保护区各项事业发展的功能区划问题，同时贯彻执行国家环保部、国家林业局的文件要求，麋鹿保护区需进行功能区划调整，目前省政府已经启动此项工作。

依据大丰麋鹿国家自然保护区生态服务功能定位，亚行项目总体目标为在麋鹿原始分布区的栖息地上重建促使麋鹿保持活力和自我维持的生境，并采取有效的保护措施，以保证麋鹿在现代生态条件下生存良好。促进盐城市沿海生态系统维护与稳定，确保区域生态安全。

具体意见：

一、项目设计是合理的：

- 1、沼泽湿地水环境生态修复，有效的满足麋鹿及其它湿地野生动植物对水资源的需求；
- 2、麋鹿栖息地生态健康工程的实施，有效的降低长角血蜱等寄生虫长期困扰麋鹿种群健康发展的影响；
- 3、牧用疏林及饲料基地建设，有效解决麋鹿在极端条件下饲草严重不足的束缚；
- 4、野外巡护设备、管护站设施设备及护拦维护，有效的提高麋鹿及其它野生动植物的保护水平。
- 5、通过实施生态监测站、科研监测中心、野生动物及栖息地视频监控系统、野生动物救护站等相关设施设备配套和完善项目，充分了解和掌握保护区内自然资源及消长情况变化，有效提高保护区管理手段和技术支撑，为保护区的科学管理、科学保护提供科学依据。
- 6、通过对保护区宣教设施建设及宣教能力的提高，使保护区真正发挥科普宣传教育和培训的基地作用，从而进一步提高社会公众对麋鹿、黄海湿地生物多样性保护重要性的认识。

二、亚行项目预期成果显著。

1、通过本项目的建设使麋鹿的生态环境有较大的改善，在局部区域改变目前狼尾草单一优势的状况，使区域内的水面和栖息地质量得到进一步提高，适合麋鹿群的繁衍需求：水域面积增加 2 倍，保护区植物的生物量提高 10%。

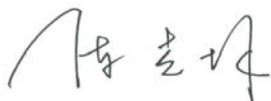
2、确保麋鹿的体质得到提高，鸟类数量得到增加：麋鹿体质提高，膘度由 7 级提高为 8 级；血蜱导致的麋鹿死亡率由 6% 下降至 4%；鸟类的总量增长 20%，其中东方白鹳种群增长 1 倍，黑翅长脚鹬的种群数量增长 30%。

3、麋鹿及其生境变化的监控能力得到加强、科研水平得到提高，使保护区成为国际领先的麋鹿科学研究基地：科研论文、著作等 5 年内增加 10 篇；增加 1 套视频监控系统。

Appendix 3

4、使公众对有关麋鹿和自然保护区知识的了解更加便捷、效果更加显著，指标如下：科研监测网站、信息站、保护区网站点击率提升 20%；游客数量、中小学来访量、对外讲座参与人数提升 30%。

项目的主要生态风险是在建设过程中对项目区生态环境、哺乳动物、鸟类有一定程度干扰，虽说这些影响是暂时的，一旦处理不当，将会造成不良影响。建议：合理选择施工期、和施工时间，合理布局施工场地、加强施工环境管理等措施，特别要强调施工期间的环境卫生保持良好状况，也包括低噪音。



湿地国际-中国办事处

2011年7月15日

(This is a translation of the preceding document.
In case of discrepancy, the preceding Chinese version will prevail.)

Comments on the Jiangsu Wetland Protection Project for the Yancheng Rare Birds National Nature Reserve and Dafeng Milu National Nature Reserve

Jiangsu Yancheng and Dafeng national nature reserves form the largest coastal wetland protection area in PRC. They are also important wintering ground for the red-crowned crane and the reintroduced milu reserve. The nature reserves are characterized by rich biodiversity and biological resources. However, due to population growth and intensified human activities, the integrity of the wetland ecosystem has been damaged. The coastal ecology has degraded. The spread of invasive species is also pronounced. Biodiversity is declining. Therefore, wetland protection and restoration interventions are urgently needed to remove the pressures that cause wetland degradation.

In June 2009, the standing committee of the State Council approved in principle the *Jiangsu Coastal Development Plan*, which promoted the Jiangsu coastal development into a national strategy. This strategy has national strategic significance.

The Jiangsu Wetland Protection Project covers the whole wetland area in Yancheng, with a focus on the core and central buffer zones. The implementation of the project will facilitate the protection and restoration of the structural integrity of the coastal wetland ecosystem and the original character of the wetland habitat, and increase the management capacity of the nature reserves. The interventions can be characterized as ecological restoration type of activities, also with the nature of scientific research and exploration. The ecological and environmental benefits of the project are apparent. The project will lead to the benign cycle of the Yancheng coastal wetland ecosystem, the recovery and stability of the biodiversity, improvement of the forest structures and safeguard of the regional ecological security. Moreover, the project will provide an environmental safeguard for the implementation of the *Jiangsu Coastal Development Plan*. Therefore, the project complements the objectives of the *Jiangsu Coastal Development Plan*. It also conforms to the relevant regulatory and policy requirements of the *PRC Regulation on Management of Nature Reserves*, *National Wetland Protection Program Implementation Plan (2005-2010)*, *China Wetland Protection Plan of Action*, *Jiangsu Provincial Plan for Important Ecological Function Zones* and *Jiangsu Coastal Development Plan*.

1. Yancheng Rare Birds National Nature Reserve

The project focuses on ecological restoration and comprehensive rehabilitation, wetland restoration and reconstruction, rehydration, conversion of fish pond to wetland, spartina control, and capacity building. The implementation of the project will bring significant ecological and environmental benefits. The design principles and methodologies have high value for scientific research and demonstration in respect to maintaining the ecosystem health and restoring and stabilizing biodiversity in the nature reserve. Meanwhile, the project will help propagate the culture of ecological protection, promote science education and raise awareness about environmental protection. The project objectives are assessed to be generally achievable.

- (1) The rehydration, fish-pond-to-wetland conversion, wetland vegetation restoration and other interventions will improve the bird habitat in the nature reserve. The restoration and rehabilitation of wetlands will provide 3,043 ha of suitable habitat for the red-crowned crane, which will meet the resting and feeding needs of a sizable red-crowned

- crane population.
- (2) The restored and rehabilitated wetland ecosystem will increase the fixation of nitrogen, phosphorus and potassium. The project design has made use of the results of overseas and domestic research. By using freshwater and combining the controlled rotation of fresh-saline water, the project attempts to suppress the growth of the spartina. This is a significant pilot project for spartina control, which will provide site-specific experiment and technological innovation for the possibility of extending to the whole nature reserve. It will also cumulate technological options and experience for country-wide control of spartina.
 - (3) The construction of patrol stations, wetland monitoring station, bird observation stations, meteorological stations, research center and ecological barriers will enhance the capacity of the nature reserve to protect, manage, monitor and study wetlands. They will achieve the integration of wetland ecosystem protection, ecological site monitoring and wetland science education, making the nature reserve into a national example of coastal wetland ecosystem restoration and rare birds protection for the country.

During the construction phase, the temporary occupation of land, earth works, material transportation and the operation of the construction machinery may result in vegetation removal and soil erosion in the local area, and may possibly affect the resting and feeding of the protected species. Therefore I suggest the following measures to minimize the construction impacts: well planned construction schedule to avoid as much as possible the migratory seasons, especially the wintering season for the red-crowned crane, maximum use of existing buildings and facilities, training of construction workers to raise their protection awareness and preparation of a rescue plan.

The project risks will mainly come from two aspects. The first is the possibility of introducing alien species during vegetation restoration. The second is the uncertainty associated with the outcome of the spartina control pilot. The project will select local species with no use of alien species as contained in the national invasive species list. As such the risk of invasive species is low. The spartina control pilot is experimental in nature. There is uncertainty with respect to its actual outcome. But the distribution of spartina in the project area is wide. Even if the pilot would not achieve its desired outcome, it will not have any negative impact on the ecosystem in the nature reserve. Thus the ecological risk is also minimal.

In summary, the Jiangsu Yancheng Wetland Protection Project involving the two nature reserves will bring obvious comprehensive benefits to the coastal wetland ecosystem, and lead to gradual improvement to the coastal wetland ecosystem health. The implementation of the project will also enhance the recovery and stability of the biological diversity of the Yancheng coastal wetlands, improve local ecological environment and safeguard the regional ecological security.

2. Dafeng Milu National Nature Reserve

The Jiangsu Dafeng Milu National Nature Reserve was established through a partnership between the then Ministry of Forestry and Jiangsu Provincial Government. The nature reserve is an important part of the national priority of restoring milu population and protection coastal wetland biodiversity. Since the establishment of the nature reserve in 1986, the multi-stakeholder effort of milu and wetland protection has produced remarkable results, which have received recognition by the global endangered species protection community. The nature reserve was accredited into the List of Wetlands of International Importance, and accepted by Wetlands International to become a wetland science education base, awarded by the State

Appendix 3

Forestry Administration as a national demonstration nature reserve, and named by the Ministry of Environmental Protection and Ministry of Science and Technology as a national environmental education base.

In recent years, as the milu population increases, the nature reserve suffers from wetland habitat degradation, weak patrol and protection infrastructure and weak management capacity. The support of ADB loan will provide a strong incentive to the nature reserve in responding to the problems. The successful implementation of the project will improve the patrol and protection capacities, improve the ecological environment within the nature reserve, increase the nature reserve's capacity in public education, increase the nature reserve's scientific research and rescue capacity and enhance the nature reserve's management capability. Thus it will strengthen the protection of the coastal wetland of international importance.

The Dafeng Milu Nature Reserve is the largest milu sanctuary with the largest milu population. Therefore it is important for protecting this lost yet re-introduced rare species.

According to my knowledge, the milu nature reserve already had an administrative area, ecotourism area and public education area before it was promoted to a national nature reserve in 1997. When it became a national nature reserve, all the land areas in the nature reserve, including the ecotourism area, administrative area and staff living quarters were designated as the core zone. Yet the PRC Regulation on Management of Nature Reserves, proclaimed in September 1994, prohibits activities in the core zone. In order to resolve this historical dilemma that constrains the operation of the nature reserve, there is a need for re-zoning the nature reserve. The Jiangsu Provincial Government has initiated this work.

According to the designated ecological service functions of the Dafeng Milu National Nature Reserve, the overall objectives of the ADB loan project are to reconstruct the original habitat so as to maintain the self-sustaining ecosystem, and to provide the milu with a healthy living environment. The project will also help promote the health and stability of the Yancheng coastal wetland ecosystem and safeguard regional ecological security.

Specific comments are as follows:

- (1) The project design is appropriate:
 - a) Wetland rehabilitation will effectively meet the water demands of milu and wetland wild flora and fauna.
 - b) The milu habitat health improvement interventions will reduce the *Haemphysalis longicrnis* that has long affected the health of the milu population.
 - c) The establishment of fodder and grazing grounds will resolve the problem of food shortages in extreme conditions.
 - d) Field patrol equipment, patrol and protection facilities and fencing replacements will provide better protection to milu and other wildlife.
 - e) Ecological monitoring stations, research and monitoring center, wildlife and habitat video surveillance system, wildlife rescue facilities and other related infrastructures will provide information on natural resources and their dynamics in the nature reserve and assist with science-based management and protection.
 - f) Public education infrastructure strengthening and capacity building will increase public awareness about the importance of milu and biodiversity of the Yellow sea.

Appendix 3

- (2) The expected results of the ADB project are significant:
- a) The project will significantly improve the ecological environment for the milu. It will change the present situation of single species dominance by cat tail grass. It will also improve the water surface and resting space and meet the breeding needs of the milu, by enlarging the water surface by 100% and biomass by 20%.
 - b) It will increase the health of the milu, and the number of birds in the nature reserve. The fatness index of the milu is expected to increase from level 7 to level 8. The mortality rate of the milu from *Haemphysalis longicornis* will decrease to 6% to 4%. Bird population will increase by 20%. In particular, the oriental white stork population will increase by 200%; and the population of the black-winged stilt will increase by 30%.
 - c) The capacity in monitoring the milu and its habitat and related research capacity will be strengthened to enable the nature reserve to become a world class milu research base. Ten scientific papers and books will be produced in five years. A set of video surveillance system will be established.
 - d) The project will increase public knowledge of the milu and the nature reserve. The indicators of the results are: the number of hits to the scientific research and monitoring webpage, information webpage and nature reserve webpage will increase by 20%. The number of tourists, primary and secondary school students and workshop participants will increase by 30%.

The major ecological risk would be the disturbance, to a certain extent, to the ecosystem, mammals and birds in the project area during construction phase. Although the impact may be temporary, the impact could be adverse if not properly handled. It is suggested that the construction schedule and timing be optimized, construction should be well organized. The environmental management for construction should be strengthened, especially maintaining proper sanitation and minimizing noise.

(Signed by Chen Kelin)
Wetland International -- PRC Office
15 July 2011

APPENDIX 4: IUCN CONSERVATION STATUS OF RED-CROWNED CRANE AND MILU (DAVID DEER)

(1) Red-Crowned Crane (*Grus japonensis*)

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	<ENDANGERED>	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX

Taxonomy

Kingdom	Phylum	Class	Order	Family
ANIMALIA	CHORDATA	AVES	Gruiformes	Gruidae
Scientific Name:	<i>Grus japonensis</i>			
Species Authority:	(Müller, 1776)			
Common Name/s:	English – Red-crowned Crane, Japanese Crane, Manchurian Crane Spanish – Grulla De Manchuria, Grulla Manchú			

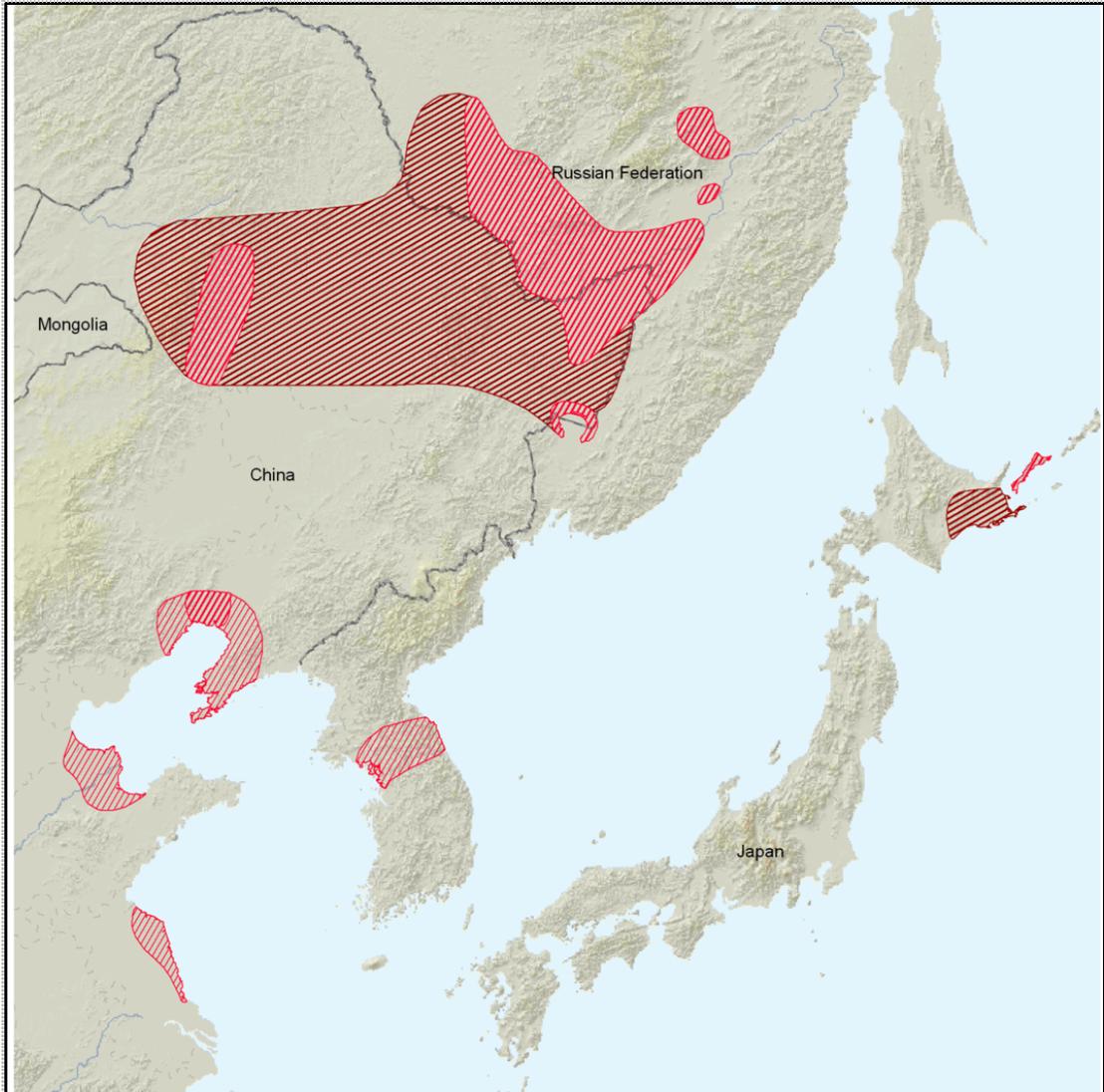
Assessment Information

Red List Category & Criteria:	Endangered C1 ver 3.1		
Year Assessed:	2009	Assessor/s:	BirdLife International
Reviewer/s:	Bird, J., Butchart, S., Symes, A. (BirdLife International), Chan, S. (Wild Bird Society of Japan)		
Justification:	This species is classified as Endangered because it has a very small population, and although the population in Japan is stable, the mainland Asian population continues to decline owing to loss and degradation of wetlands through conversion to agriculture and industrial development.		
History:	2008 – Endangered 2004 – Endangered 2000 – Endangered 1994 – Vulnerable 1988 – Threatened		

Geographic Range

Range Description:	<i>Grus japonensis</i> breeds in south-eastern Russia , north-east PRC , Mongolia (first record in 2003) and eastern Hokkaido, Japan . The Russian and Chinese populations mainly winter in the Yellow river delta and the coast of Jiangsu province, China, and the Demilitarised Zone, Democratic People's Republic of Korea/Republic of Korea . Staging areas exist along the Yellow river between the provinces of Shanxi and Shaanxi. The Japanese population is non-migratory. The population is estimated at c.2,750 birds, although since it has a long generation length (12 years), this figure is likely to include only 1,650 mature individuals. Trends are difficult to infer from population estimates, because due to habitat degradation wintering sites are becoming more concentrated and counts are therefore likely to be becoming more accurate, but it is likely to be declining on mainland Asia. The wintering population in China totals c.1,000 birds at two sites and declining, with another 600-750 at four locations in People's Republic of Korea/Republic of Korea. The resident population in Japan has increased to c.1,000 birds and has now reached carrying capacity and stabilised.
Countries:	Native: PRC; Japan; Democratic People's Republic of Korea; Republic of Korea, Mongolia; Russian Federation.

Range Map:



Grus japonensis

range type

- native (resident)
- native (breeding)
- native (non breeding)
- reintroduced
- introduced
- uncertain origin
- possibly extinct
- extinct

- national boundaries
- subnational boundaries
- lakes, rivers, canals
- salt pans, intermittent rivers

data source:
BirdLife International, 2008

NE DD LC NT WU **< EN >** CR EW EX
ENDANGERED

azimuthal equal area central point: 0°, 0°

map created 09/15/2008



Population

Population:	Population estimate is 2,750 individuals, Jim Harris in litt 2007 recommended that this equates to 1,650 mature individuals.
Population Trend:	↓ Decreasing

Habitat and Ecology

Habitat and Ecology:	In Russia and China, it breeds in grass, reed, and sedge marshes. In winter and on passage, it occurs in wetlands, including tidal flats, saltmarshes, rivers, wet grassland, salt pans and aquaculture ponds.
Systems:	Freshwater

Threats

Major Threat(s):	The key threat is the loss and degradation of wetlands in its breeding and wintering grounds, principally for conversion to agriculture, but also industrial and economic development. In China, wetlands are becoming drier as a result of surrounding development. In Russia and China, spring fires destroy suitable nesting grounds, and the proliferation of dams lowers the water level, allowing predators access to nests and destroying suitable breeding sites. Rainfall patterns in the breeding grounds appear to follow a 30 year cycle, and the current dry period has meant birds, people and livestock have had to depend on ever smaller areas of wetland, and there has been increased pressure to divert water from rivers and lakes. Important sites on the Song-nen plain, Shuangtai Hekou and Yellow River delta are on or near major oilfields and pollution is a potential threat. There is high adult mortality in some mainland wintering areas which is apparently due to poisoning; the species has been found to carry high levels of heavy metal contamination. In the de-militarized zone of People's Republic of Korea/Republic of Korea changing to autumn ploughing reduces access to waste grain, and there is uncertainty regarding the long-term fate of the crane habitat, whatever the political future delivers. In Japan, the concentration of birds at feeding stations means there is a risk of disease.
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Conservation Actions

Conservation Actions:	<p>Conservation actions underway: CITES Appendix I and II. CMS Appendix I and II. It is legally protected in all range states. Key protected areas include Khingansky, Muraviovka and Lake Khanka (Russia), Zhalong, Xianghai, Shuangtai Hekou, Yellow river delta and Yancheng (China), Kumya and Mundok (North Korea), Kushiro, Akkeshi-Bekanbeushi and Kiritappu (Japan).</p> <p>Conservation actions proposed: Expand the area/number of wintering sites in Japan. Establish a transboundary protected area at Tumen estuary, between Russia/China/North Korea. Secure the conservation status of the Cholwon and Han estuary in the Demilitarised Zone. Establish protected areas on the Sanjiang plain (PRC). Halt tidal-flat reclamation along the Yancheng coast (China). Prevent poisoning from pesticides and poaching. Control fires in the breeding grounds. Establish interest groups for crane conservation in PRC.</p>
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Citation:	BirdLife International 2009. <i>Grus japonensis</i> . In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.1. < www.iucnredlist.org >. Downloaded on 23 July 2011.
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(2) Milu (*Elaphurus davidianus*)

Taxonomy

Kingdom	Phylum	Class	Order	Family
ANIMALIA	CHORDATA	MAMMALIA	CETARTIODACTYLA	CERVIDAE
Scientific Name:	<i>Elaphurus davidianus</i>			
Species Authority:	Milne-Edwards, 1866			
Common Name/s:	English – Père David's Deer, Pere David's Deer			

Assessment Information

Red List Category & Criteria:	Extinct in the Wild ver 3.1		
Year Assessed:	2008	Assessor/s:	Jiang Zhigang & Harris, R.B.
Reviewer/s:	Black, P.A. & Gonzalez, S. (Deer Red List Authority)		
Justification:	This species is listed as Extinct in the Wild, as all populations are still under captive management. The captive population in China has increased in recent years, and the possibility remains that free-ranging populations can be established some time in the near future. When that happens, its Red List status will need to be reassessed.		
History:	1996 – Critically Endangered 1994 – Endangered (Groombridge 1994) 1990 – Endangered (IUCN 1990)		

Geographic Range

Range Description:	<p>This species is endemic to China. Père David's deer has been recovered from the brink of extinction and has become a classic example of how to rescue a highly threatened species (Ebenhard 1995). In the mid 1980s, Père David's deer was re-introduced into captive facilities in China, and populations established in Beijing, Dafeng, Tianezhou and Yuanyang.</p> <p>Fossils of <i>Elaphurus bifurcates</i>, <i>E. chinanensis chia</i>, <i>E. lantianensis</i> have been excavated from the region east of Xi'an and south of Harbin. The modern species of <i>Elaphurus</i>, Père David's deer (Milu in Chinese) evolved in the Pliocene period of the Tertiary, according to fossils excavated in southern Japan. During the Pleistocene period, it was known from Manchuria (Hofmann, 2007). During the Holocene, <i>P. davidianus</i> was restricted to swamps and wetlands in the region south of 43°N and east of 110°E in mainland China (Cao 1992, Zhou, 2007). However, the distribution of <i>P. davidianus</i> shrank and its population declined due to hunting and land reclamation in the swamp areas as human population expanded (Jiang and Li, 1999). <i>P. davidianus</i> had largely disappeared in the wild by the late 19th century, and the last wild animal was shot near the Yellow Sea in 1939.</p> <p>However, during the Qing Dynasty (1616-1911), the Nanyuang Royal Hunting Garden contained a herd of <i>P. davidianus</i> in its 200 km² hunting ground. This hunting garden in the southern suburbs of Beijing was predominantly a wetland, consisting of swamps, ponds and lakes crossed by the Yongding River. The area had been sealed off from the outside world since the Yuan Dynasty (1205-1368) as a royal garden. The French missionary Père Armand David "discovered" <i>P. davidianus</i> in the Nanyuan Royal Hunting Garden in 1864. Realising that the deer was an unknown species to the West, he persuaded the wardens to give him hinds and skeletons of an adult male, an adult female and a young male, and sent them to Paris in 1866, where the species was named Père David's deer by Milne-Edwards. In 1895, the wall of the Nanyuan Hunting Garden was destroyed by a heavy flood of the Yongding</p>
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River, and most of the Père David's deer escaped and were hunted. Only 20-30 animals survived in the garden. Then in 1900, during the Boxer Rebellion, the garden was occupied by troops and the remaining deer were shot and eaten.

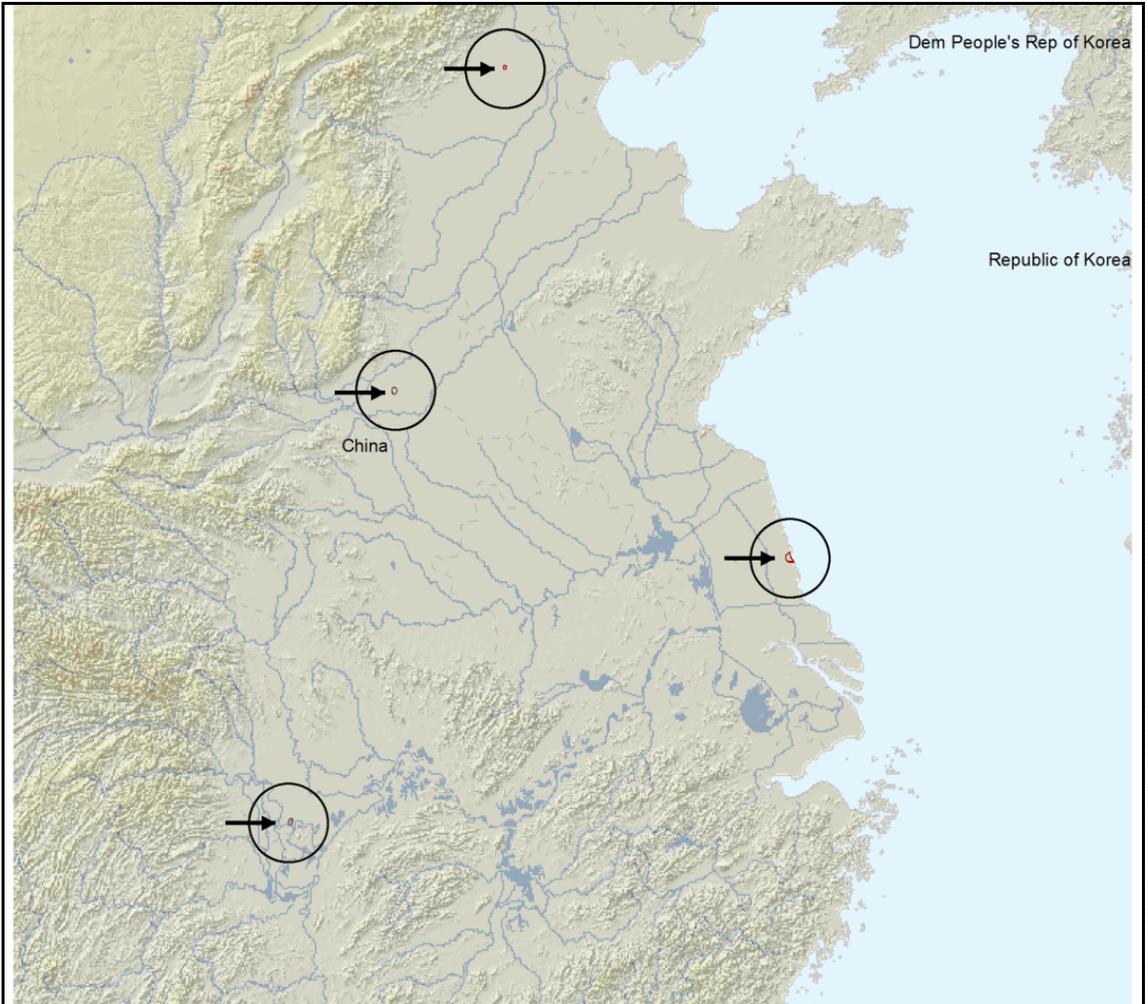
However, before the demise of the royal herd of Père David's deer in the Nanyuan Royal Hunting Garden in 1900, the deer had been introduced into private deer collections in the United Kingdom, France and Germany. During the first decade of the 20th century, the 11th Duke of Bedford in the United Kingdom gathered the last 18 Père David's deer in the world to form a breeding herd at the Woburn Abbey, England. Only 11 of these deer were capable of reproducing (Bedford, 1951-52). Nevertheless, the heavily inbred Père David's deer safely passed through the genetic bottleneck of inbreeding and adopted the vast open parkland of an English country estate (Jones *et al.* 1983).

The captive population started to increase (though with a setback during the First World War due to food shortage), and since the Second World War, the animals started to be spread through captive facilities worldwide, with the first captive animals being sent back to Beijing Zoo in 1956. More recently deer have been sent to China into managed, fenced situation in Beijing, Dafeng, Tianezhou and Yuanyang.

Countries:

Regionally extinct: China

Range Map:



Elaphurus davidianus

range type

-  native (resident)
-  native (breeding)
-  native (non breeding)
-  reintroduced
-  introduced
-  origin uncertain
-  possibly extinct
-  extinct

-  national boundaries
-  subnational boundaries
-  lakes, rivers, canals
-  salt pans, intermittent rivers

data source:
IUCN (International Union for Conservation of Nature)

NE DD LC NT VU EN CR < EW > EX



azimuthal equal area central point: 0°, 0°

Map created 10/02/2008



Population

Population:	<p>After decades of <i>ex situ</i> conservation, the species breeds successfully in captivity (Beck and Wemmer 1983). In China there are now fenced populations in Beijing, Dafeng, Tianezhou and Yuanyang.</p> <p>The first conservation reintroduction of Père David's deer to China included two groups, of 20 deer (5 males: 15 females) and 18 deer (all females), in 1985 and 1987, respectively. All 38 deer were donated by the Marquis of Tavistock of Woburn Abbey, and the transportation was sponsored by the World Wildlife Fund (WWF). After a careful search and evaluation by a group of zoologists, botanists, wildlife managers and officers, the relic site of the Nanyuang Royal Hunting Garden in the southern suburbs of Beijing was chosen as the site of re-introduction, creating the Beijing Milu Park (39°07'N, 116°03'E), with an area of 60 ha. The deer in the park have received supplemental feeding year round (Jiang <i>et al.</i> 2000a).</p> <p>The second re-introduction of <i>E. davidianus</i> was carried out in August of 1986, organized by former Ministry of Forestry and WWF. A group of 39 Père David's deer was selected from five zoological gardens in the United Kingdom, with the deer mainly from the Whipsnade Wild Animal Park. An extensive search which covered a vast area in eastern China for a potential reintroduction site was conducted before a decision was made. The Dafeng State-Owen Forestry Farm was chosen, on the Yellow Sea coast in eastern China in a lightly populated area (semi-fossils of Père David's deer have been excavated from the neighbouring counties, so this site is probably in its natural habitat). The introduced herd was released into three fenced paddocks, each about 100 ha in area. The reserve purchased another 30 km² land in 1995, more than doubling its original size. In 1997, the Dafeng Milu Nature Reserve was approved by the National Nature Reserve Commission as a national nature reserve. The Dafeng Milu Nature Reserve has the potential to host a large population of Père David's deer. The reserve has kept the reintroduced Père David's deer and their offspring on its land, and in 1998 the first group of deer was released from the paddocks into the wider reserve (Hu and Jiang 2002). In 2003, and 2006 another two groups of deer were released from the paddocks. There were 950 Père David's deer in the reserve in 2006. The annual average population growth rate of deer in the reserve was 17.01%. This Père David's deer conservation strategy calls for further expanding of the Dafeng Milu Nature Reserve (Jiang <i>et al.</i>, 2000b).</p> <p>The Beijing Milu Park is in a suburb of the national capital with a limited area and is engulfed by city development, whereas the Dafeng Milu Nature Reserve is located in a remote costal region with little human settlement, where it is possible to acquire more land for conservation. Therefore, the Beijing Milu Park while keeping a healthy nuclear breeding herd of about 100 deer at the park, has shipped Père David's deer to other sites in east China (Yang, 2007). The translocations thus reduced the grazing pressure on the park vegetation and expanded the distribution range of the Père David's deer in the country. The average annual population growth rate for Père David's deer in Beijing Milu Park from 1987-1997 was 17.3%. This Père David's deer conservation strategy calls for an expansion of this artificial dispersal of animals to establish new sites (Jiang <i>et al.</i>, 2000b).</p> <p><i>E. davidianus</i> from the Beijing Milu Park have been relocated to the lower reaches of the Yangtze River in eastern China and Hainan Island in the South China Sea. In October 1993, a group of 30 Père David's deer (8 males: 22 females) arrived and was released in a paddock on a small peninsular in the Yangtze River, Tianezhou (29°49'N, 112°33'E). This site was then established as the Tianezhou Milu Nature Reserve in 1993. The size of the reserve is 11.67 km². Another group of 34 Père David's deer (10 males: 24 females) was transferred from the Beijing Milu Park to the Tianezhou paddock in the following year to enlarge the population. An additional 30 deer (15 males: 15 females) were released into the paddock of the reserve in 2002. The relocated deer reproduced in the second year after the relocation (Yang <i>et al.</i>, 2002). By the end of calving season of 2006, there were 522 <i>E. davidianus</i> in the Tianezhou Milu National Nature Reserve. The annual average population growth rate was 22.2%. The birth rate and population growth rate in Tianezhou were significantly higher whereas the mortality rate was significantly lower than those of the Dafeng.</p> <p>In November, 2002, 30 <i>E. davidianus</i> (14 males: 16 females) from Beijing Milu Park and 20 from the Dafeng Milu Nature Reserve were introduced to Yuanyang Forestry Farm, Henan. These deer are in an enclosure on the Yuanyang Yellow River Nature Reserve (35°11'N,</p>
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	<p>114°15'E). In 2006, there were 53 deer in the Yuanyang Yellow River Nature Reserve paddock, but the sex ratio was predominately male biased (38 males: 15 females) (Li <i>et al.</i> 2007).</p> <p>Currently, there are a total of 53 herds of <i>E. davidianus</i> in China. Nine herds have fewer than 25 deer, 75.5% have fewer than 10 deer (Yang <i>et al.</i>, 2003). Such a small herd size raise question about the effective population size and health of population genetics, since those herds are isolated and there is no gene exchange. The artificially dispersed <i>E. davidianus</i> herds are similar to a meta-population. The viability of the meta-population depends on the man-made gene exchange process by the managers.</p>
Population Trend:	↑ Increasing

Habitat and Ecology

Habitat and Ecology:	<p>Studies have been carried out on the behavior, ecology and reproduction of Père David's deer in Beijing since 1985, in Dafeng since 1986, and in Tianezhou since 2001. This species lives in low-lying grasslands and reed beds, often in seasonally flooded areas such as the lower Yangtze River valley and coastal marshes. It eats grass, reeds and leaves of bushes, can swim well, and spend long periods in water. It lives in single sex or maternal herds. Animals reach maturity during second year. Gestation is 270-300 days. One, rarely two young are born. These are weaned in 10-11 months. Adults live up to 18 years. Data from the Dafeng Reserve suggests that female <i>E. davidianus</i> establish a home range of approximately 1 km² (Hu and Jiang 2002).</p>
Systems:	Terrestrial; Freshwater

Threats

Major Threat(s):	<p>The species became extinct in the wild due to habitat loss and hunting. The size of the reintroduced population was only 120 in 1993 (Cao 1993), although has increased to over 2,000 since that time (Yang <i>et al.</i> 2008). Low genetic diversity has been identified as a long-term threat by Zeng <i>et al.</i> (2007) and Yang <i>et al.</i> (2008). It is unclear how much native habitat remains on which <i>E. davidianus</i> can exist in a free-ranging state.</p>
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Conservation Actions

Conservation Actions:	<p>It is listed on the Chinese Red List as Extinct in the Wild, and on the China Key List - I. The present re-introduced populations are contained within enclosures and are essentially still subject to captive management.</p> <p>Recommended conservation action includes:</p> <ol style="list-style-type: none"> 1. Establish additional populations when and where appropriate, with the aim of re-establishing a genuinely wild, free-ranging population. 2. Establish a genetic management programme of all populations in China. 3. Develop conservation education programmes to raise conservation awareness among the local people and general public. <p>Following a trial release of this species in the Dafeng Reserve, China, Hu and Jiang (2002) concluded that future releases will necessitate either natural or artificial boundaries to alleviate conflict between introduced <i>E. davidianus</i> and farmers, on whose land the deer are likely to stray. These authors suggest a reintroduction model based on that of <i>Oryx leucorox</i> in Oman (Stanley Price 1989).</p>
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Citation: Jiang Zhigang & Harris, R.B. 2008. *Elaphurus davidianus*. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.1. <www.iucnredlist.org>. Downloaded on **23 July 2011**.

Resettlement Plan

Project Number: 40685
November 2011

PRC: Jiangsu Yancheng Wetlands Protection Project

Prepared by the Jiangsu provincial government for the Asian Development Bank.

This resettlement plan is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

Resettlement Plan for the Jiangsu Yancheng Wetlands Protection Project

Project Management Office of the Jiangsu provincial government
of the People's Republic of China

November 2011

Jiangsu Yancheng Wetlands Protection Project

Resettlement Plan

CURRENCY EQUIVALENTS

(As of 18 November 2011)

Currency unit	–	yuan (CNY)
CNY 1.00	=	\$0.1574
\$1.00	=	CNY6.3519

ABBREVIATIONS

ADB	–	Asian Development Bank
AP	–	affected person
CNY	–	Chinese yuan
DFF	–	Dafeng Forest Farm
DMNNR	–	Dafeng Milu National Nature Reserve
ha	–	hectare
kg	–	kilogram
km	–	kilometer
PMO	–	project management office
JPMO	–	provincial project management office
PIU	–	project implementation unit
PRC	–	People's Republic of China
RP	–	resettlement plan
SFF	–	Sheyang Forest Farm
SDMB	–	Sea Dike Management Bureau
YPMO	–	Yancheng project management office
YRBNNR	–	Yancheng Rare Birds National Nature Reserve

NOTES

- (i) The fiscal year of the Government of the People's Republic of China and its agencies ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

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11 October 2011

**Letter of Endorsement
for
Resettlement Plan
P40685-PRC: Jangsu Yancheng Wetlands Protection Project**

The Jiangsu Provincial Government (JPG), through the Ministry of Finance have applied for an Asian Development Bank (ADB) loan to finance the Jangsu Yancheng Wetlands Protection Project. The project is planned to start in 2012, and complete in 2017. Accordingly, the project will abide to the social safeguard requirements of ADB (Safeguard Policy Statement 2009), and therefore a resettlement plan has been prepared. The resettlement plan lays out mitigation and enhancement measures, implementation requirements, monitoring requirements, and other relevant actions to mitigate the impacts of land acquisition, economic displacement, and other project activities as described in the plan.

JPG endorses the content and activities described under the plan. JPG confirms it will ensure that the project implementing agencies will follow the requirements of the plan, and that all measures will be implemented according to requirements laid out in the plan. JPG has discussed the resettlement plan with relevant local governments and project management offices and obtained their consent. JPG has no objection to posting the resettlement plan on the ADB website according to ADB normal procedures.

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Project Management Office



EXECUTIVE SUMMARY

A. Introduction

1. The Jiangsu Yancheng Wetlands Protection Project financed in part by the Asian Development Bank (ADB) is composed of four investment outputs: (i) wetlands protection at the Yancheng Rare Birds National Nature Reserve (YRBNNR), (ii) wetlands protection at the Dafeng Milu National Nature Reserve (DMNNR), (iii) coastal forest improvement at the Sheyang Forest Farm (SFF), and (iv) coastal forest improvement at the Dafeng Forest Farm (DFF). The wetlands protection at DMNNR and YRBNNR outputs will be implemented within the respective nature reserves which were established in 1983 when the state allocated the land-use titles to the nature reserves. The coastal forest improvement at DFF and SFF outputs will be implemented within the current territories of the two forest farms where the land is state-owned, except for the wetland restoration subcomponent of the coastal forest improvement at DFF where the land has been allocated by the Yancheng oceanic and fishery bureaus, and is also state-owned. For the four project outputs, there will be economic displacement of 156 households due to the nonrenewal of land-use leases, which will expire before the commencement of project activities on the respective land. Measures have been formulated and will be implemented such that the livelihood of the economically displaced persons will be safeguarded by providing alternative fishponds and new leases for replacement land.

B. Land Occupation

2. **Wetlands protection at YRBNNR.** The fishpond-to-wetland conversion subcomponent will affect one household (with 5 family members) who has contracted 14,918.8 *mu*¹ of the core zone for aquaculture and 15 seasonal workers (with 49 family members). The five-year lease agreement will expire on 31 December 2012. Upon expiry, the lease will not be renewed.

3. **Wetlands protection at DMNNR.** DMNNR has three core zones without a buffer or experimental zone. All activities will be implemented in the core zones. The property right of the nature reserve belongs to the state. Neither land acquisition nor house demolition will be involved.

4. **Coastal forest improvement at SFF.** This output will involve land-use changes for 8,089 *mu* of land, including 3,313 *mu* of cultivated land, 289 *mu* of intercropping farmland, 1,833 *mu* of forested land, and 2,654 *mu* of other types of land, such as river course and construction land. The cultivated land and inter-cropping land are leased to 112 farm workers (with a total of 336 family members) and 28 outside contractors (with a total of 103 family members). The lease is renewable on an annual basis. The land use changes will not cause house demolition, but will lead to economic displacement.

5. **Coastal forest improvement at DFF.** This output will be implemented in the north section of the forest farm. This output will also not change the current intercropping structure of 6,285 *mu* to be covered by project implementation, and will not affect the existing land contractors.

6. In summary, the project will affect 493 persons in 156 households, including one household (with 5 family members) and 15 seasonal workers (with 49 family members) under the wetlands protection at YRBNNR output, and 112 farm workers (with 336 family members) and 28 outside land contractors (with 103 family members) under the coastal forest improvement at SFF output.

¹ A *mu* is a Chinese unit of measurement (1 *mu* = 1/15 hectare).

C. Policy Framework and Resettlement Principles

7. The resettlement plan (RP) is prepared according to the People's Republic of China's Land Administration Law (2004) and the related national, provincial, and municipal policies and regulations, as well as in compliance with ADB's Safeguard Policy Statement (2009). On the basis of the above-mentioned regulatory and policy requirements and in consultation with local governments, the resettlement principles established for the project are that (i) land acquisition and involuntary resettlement should be avoided or minimized where feasible by developing and comparing a series of design alternatives; (ii) compensation be paid and other resettlement entitlements provided before physical or economic displacement. Compensation and entitlements provided must be adequate to allow those affected to at least maintain their pre-project standard of living, with the prospect of improvement; (iii) land temporarily occupied and the period for disruption are to be kept to a minimum; (iv) all affected persons (APs), titled and nontitled, and renters and/or contractors are to be taken into consideration; (v) RP should be prepared and implemented in accordance with state land rehabilitation policy, national economic and social development plans, and ADB's SPS; (vi) all those affected will be adequately informed about eligibility, compensation rates and standards, livelihood and income restoration plans, and project timing; (vii) RP should be coordinated with regional development, economic development, and environmental protection; (viii) practical and feasible measures should be formulated to restore the affected items; (ix) a preferential policy and assistance will be provided to vulnerable groups in such things as employment; and (x) close monitoring and timely actions will be carried out to identify and resolve any problems.

D. Resettlement Impacts and Mitigation Strategies

8. At the stage of feasibility study, consultations with the Jiangsu provincial project management office (JPMO), the Yancheng municipal project management office (YPMO), the Tinghu district project management office (TPMO), and the Dafeng city project management office (DPMO), local government agencies, project implementation units (PIUs), and local communities have been undertaken for the purpose of avoiding resettlement. The project and its outputs have been redesigned after several rounds of consultation during project preparation. One output—the Dazong lake wetland restoration—was taken out of the project because of the large-scale acquisition of basic farmland.

1. Wetlands Protection at YRBNNR

9. YRBNNR has reached an agreement with the Sea Dyke Management Bureau, who is the largest aquacultural developer in the area. So, if the affected 16 households in YRBNNR want to lease the fish farms owned by the bureau, each household will be provided with 1,000 *mu* of newly developed advanced fishpond. As such, there will be no interruption to the livelihood or income of the affected households. Training on green aquaculture techniques and skills will be provided to the affected households. Their livelihood and income level will be protected.

2. Coastal Forest Improvement at SFF

10. SFF will provide farmland of same quantity and quality to each of the APs. SFF will rearrange the land for the APs before January 2012, and sign new contracts with them to ensure that they will get farmland at same quantity and same quality as present to avoid the loss of livelihood. During project implementation, 100 temporary employment opportunities will be provided to the APs and outside contractors on a priority basis. The estimated earning is CNY100 per day. No decline in livelihood or income level is anticipated.

E. Rights and Interests of Vulnerable Groups and Women

11. According to the preliminary socioeconomic survey, no vulnerable groups will be affected. To maximize benefits to women, the project management offices (PMOs) will have at least 30% representation by women. Of the 100 persons trained under the project by 2013, at least 30% will be reserved for women. Moreover, 30% of construction labor and 50% of operational jobs will be provided to women.

F. Public Participation and Information Disclosure

12. Extensive information disclosure and public consultations have been undertaken during project preparation. This resettlement plan has incorporated the views, expectations, comments, and suggestions of the key stakeholders, especially the APs. Further information disclosure and consultations will be undertaken during project implementation.

G. Grievance Redress

13. A grievance redress mechanism has been formulated to resolve disputes that may arise during implementation of the RP, targeting at speedy and transparent responses to APs' complaints. The APs may appeal for any aspects of resettlement activities.

H. Organization

14. The Yancheng municipal government will take full responsibility for project resettlement activities for the approved RP. JPMO, YPMO, and city/district PMOs are responsible for the leadership, organization, and coordination for RP implementation, internal monitoring, and supervision. They will be supported by the Jiangsu land resources department, the Yancheng land resources bureau, the Tinghu district land resources bureau, and the Dafeng city land resources bureau.

I. Monitoring and Evaluation, and Reporting

15. Internal and external monitoring of RP implementation will be carried out. JPMO, YPMO, TPMO, and DPMO will lead the internal monitoring, while the PMOs will be responsible for execution. The PMOs will compile quarterly internal monitoring reports, including summary on current resettlement activities, problems and difficulties encountered during the implementation process, and mitigation measures taken. PIUs will retain an independent agency to conduct external monitoring once every 6 months and submit reports to JPMO and ADB. JPMO and the PMOs will compile a completion report when project resettlement activities are completed substantially. The report will elaborate the resettlement implementation activities, including cost, progress, complaints and appeals, and actions and final resolutions.

J. Schedule, Funds, and Budget

16. Resettlement will be carried out from June 2012 to June 2016. The resettlement budget totals CNY1.8 million, involving relocation of specific facilities, planning and design, monitoring and evaluation, and implementation and management. PIUs will guarantee the provision of sufficient resettlement funds.

1. Description of the Project

1.1 Project Background

1. Jiangsu is among the provinces with the largest wetlands in the People's Republic of China (PRC). A significant portion of them is located in Yancheng municipality. The coastal wetlands in this municipality cover a total area of 453,000 hectares (ha)—about 30% of the municipality's total area; and stretch for about 580 kilometers (km) along the coast, accounting for 70% of the provincial total and 14.3% of the national total. The Yancheng coastal wetlands consist primarily of extensive intertidal mudflats, tidal creeks and river channels, salt marshes, reed beds, and marshy grasslands that provide desirable habitats for numerous species of flora and fauna of global and national importance. In recognition of the uniqueness of these wetland ecosystems and the species biodiversity that they harbor, the Dafeng milu national nature reserve (DMNNR) and the Yancheng rare birds national nature reserve (YRBNNR) are accredited to the List of Wetlands of International Importance under the Ramsar Convention and the UNESCO's World Network of Biosphere Reserves. The Sheyang forest farm (SFF, neighbouring YRBNNR) and the Dafeng forest farm (DFF, neighbouring DMNNR) provide an extra ecological protection to the two nature reserves. Meanwhile, they are part of the national coastal ecological protection forest network and provincial forest parks.

2. Moreover, the Yancheng wetlands provide important ecosystem services to local communities. Local livelihoods are sustained through the capture and culture of marine and estuarine plants (e.g., reeds) and fish species. Wetland plants slow the flow of rivers; and the mudflats absorb wave energy from the Yellow Sea, thereby controlling coastal erosion and increasing climate resilience that alleviates the coastal communities of the risks of tsunami and storm surges. Wetlands also improve water quality by assimilating some of the household and industrial wastes that are rapidly increasing in Yancheng municipality. Meanwhile, they regulate the local climate; and thus, help raise agricultural productivity. Finally, the two nature reserves, together with the two forest farms designated as provincial forest parks, attract hundreds of ecotourists each year from around the world, contributing to employment and income generation for local communities.

3. Despite their local, national, and global significance, the Yancheng coastal wetlands have been experiencing rapid degradation, leading to the loss and fragmentation of wildlife habitats and loss of biodiversity. The main threats to the coastal wetland ecosystems and biodiversity include (i) land-use changes from reclamation for agricultural, aquacultural, industrial, and urban expansion; (ii) habitat degradation, especially in the core and buffer zones; (iii) rapid spread of the alien species, particularly the *Spartina alterniflora*; (iii) dehydration; (iv) land-based, point-source and nonpoint-source pollution; and (vi) poaching. Habitat loss and degradation has led to the decline of wintering population of the red-crowned crane from 1,175 in 2001 to an all-year low of 477 in 2010. The poor quality of drinking water and grazing and fodder grounds, combined with the plague of parasites, causes a decline in the health of the milu deer in DMNNR. These threats to the two nature reserves are further magnified by the poor protection infrastructure, weak management capacity, and inadequate public education and community participation. Furthermore, the two forest farms suffer from (i) lack of forest diversity and weak resilience; (ii) decline of the drainage function of the rivers and canals; and (iii) weak forest protection infrastructure, including fire and pest prevention and control.

1.2 Project Outputs

4. The expected impact of the project will be improved ecosystem health and services in the coastal wetlands in Yancheng. The expected outcome will be increased capacity to manage and protect the wetland ecosystems in Yancheng.

5. The proposed project comprises four structural outputs, and one project management and capacity development output. The layout map of the project outputs is in Appendix 1. The interventions and activities for each output are described as follows:

6. **Wetlands protection at the Yancheng rare birds national nature reserve.** It covers eight categories of interventions: (i) wetland restoration: 540 ha of degraded wetland in the experimental zone restored; (ii) wetland rehydration: 1,630 ha of dehydrated wetland in the core zone rehydrated; (iii) fishpond conversion: 1,435 ha of fishpond converted to wetland; (iv) invasive species control: 400 ha of *Spartina alterniflora* control piloted; (v) wetland protection infrastructure: patrol roads and stations, and waste management facilities; (vi) wildlife protection: wildlife rescue, breeding, and disease control center established; (vii) wetland and biodiversity research and monitoring: a research lab and monitoring sites; and (viii) public education and community co-management: public education center and community co-management center established.

7. **Wetlands protection at the Dafeng milu national nature reserve.** It includes five categories of interventions: (i) milu drinking water supply: 24.7 ha of milu drinking water surface created; (ii) milu food supply and resting ground: 45-ha grazing and resting ground established, 50-ha rotational closure of grazing ground implemented, and 220-ha fodder ground established; (iii) milu habitat protection: 426.4-ha of tick control implemented, 24-km steel-biological fences erected and/or rehabilitated, 18.5-km patrol roads improved and one patrol station established; (iv) milu research, monitoring, and rescue capacity: milu research lab and milu habitat surveillance system established; and (v) public education capacity: public education center expanded.

8. **Coastal forest improvement at the Sheyang forest farm.** It includes six categories of interventions: (i) forest bird habitat rehabilitation: 185 ha of forest bird habitat rehabilitated; (ii) seedling nurseries: 285.2 ha of Chinese fir and evergreen tree, flora plant and color-leaf nurseries established; (iii) agroforestry: 83.5 ha of agroforestry demonstration established; (iv) drainage: 51.4 km of canals rehabilitated; (v) forest fire prevention and response: forest fire early warning and response system established; and (vi) an integrated pest management system established.

9. **Coastal forest improvement at the Dafeng forest farm.** It includes five categories of interventions: (i) coastal wetland protection forest improvement: 860 ha of coastal wetland protection forest improved and tended; (ii) coastal wetlands restoration: 122.7 ha of coastal wetland rehabilitated; (iii) drainage: 174-km canals improved; (iv) fire prevention and response: 20.9 km of fire roads rehabilitated, and a fire prevention and response system established; and (v) an integrated pest management system established.

10. **Project management and capacity development.** It has two subcomponents: (i) project management; and (ii) capacity development. It includes five categories of interventions: (i) the project management offices (PMOs) at the provincial, municipal, and county levels established with at least 30% representation by women; (ii) the project implementation units (PIUs) at the two nature reserves and forest farms; (iii) assistance provided to the Jiangsu provincial government

on formulation of policy framework on eco-compensation; (iv) 100 persons trained by 2013, with at least 30% representation of women; and (v) 30% of construction labor and 50% of operational jobs provided to women. A total of 33 person-months of national consultants and 8 person-months of international consultants will be recruited to assist PMO with these assignments.

1.3 Resettlement Impacts

11. The project will be implemented within the boundaries of the two nature reserves (YRBNNR and DMNNR) and two state-owned forest farms (DFF and SFF). The land to be required is state-owned. The above-mentioned four PIUs all have the state-owned land use certificates and forest property certificates since their creation in 1959 (SFF and DFF) and 1983 (YRBNNR and DMNNR). As a result, the outputs will affect a number of contractors of state-owned lands and relocate certain special facilities. They will not involve rural collective land acquisition and house demolition.

12. The wetlands protection at YRBNNR output will relocate and reconstruct a few special facilities, and affect one fishpond contract household with 5 family members and 15 seasonal laborers with 49 family members. The coastal forest improvement at SFF output will affect 112 farm workers with 336 family members and 28 contract households from outside with 103 family members (Appendix 2). The wetlands protection at DMNNR output will have no resettlement. The coastal forest improvement at DFF output will take 20-*mu* land for temporary use, which belongs to DFF and is currently unused land.

Table 1-1: Resettlement Impacts by Project Output

	Project Output	Impact Area (<i>mu</i>)	Impact Type	Affected People
1	Coastal forest improvement at DFF	0.0	None	0
2	Wetlands protection at YRBNNR	14,918.8	Fishpond lease contract adjustment; Relocation of special facilities relocation	1 fishpond contract household (with 5 family members), and 15 seasonal workers (with 49 family members)
3	Wetlands protection at DMNNR	0.0	None	0
4	Coastal forest improvement at SFF	3,602.0	Land lease contract adjustment ^a	112 forest farm workers (with 336 family members), and 28 outside contractor households (with 103 family members)
5	DFF	0.0	None	0
	Total	18,520.8		156 contractors (with 493 family members)

DFF = Dafeng forest farm, DMNNR = Dafeng milu national nature reserve, SFF = Sheyang forest farm, YRBNNR = Yancheng rare birds national nature reserve.

^a The directly affected person refers to those who cannot go on with farming and aquatic breeding on the leased state-owned land and water surface because of the project implementation.

1.4 Direct Project Area

13. The direct project area includes YRBNNR, DMNNR, SFF, and DFF. YRBNNR and DMNNR are administrated by Yancheng municipality. SFF is administered by the Tinghu district. DFF is under the administration of Dafeng city.

14. YRBNNR is situated along the coast of Binhai, Dafeng, Dongtai, Sheyang, and Xiangshui cities and/or counties. It covers a total area of 284,179 ha, including 21,889 ha of the core zone; 55,682 ha of the buffer zone; and 206,608 ha of the experimental zone.

15. DMNNR is located in the southern experimental zone of YRBNNR. It covers an area of 2,668 ha, with three interconnected core zones but no buffer zone or experimental zone.

16. SFF is adjacent to YRBNNR. It covers a land area of 1,900 ha, including 1,533 ha of forested land and 333 ha of farmland. It is a provincial forest park and an important part of the national coastal protection forest system. It has more than 400 forest farm workers.

17. DFF neighbors DMNNR. It covers a total area of 2,467 ha. It is a provincial forest park and an important part of national coastal shelter forest system. There are about 300 farm workers.

1.5 Measures to Minimize Adverse Impacts

18. During project planning and preparation, the following measures have been adopted by design institutes and PIUs to minimize the adverse socioeconomic impacts: (i) project alternatives have been compared and screened to avoid land acquisition and house demolition, and to minimize negative socioeconomic impacts; (ii) one project site was dropped mainly because of major resettlement impacts; and (iii) optimize the project design to reduce the occupation of land and livelihood interruptions.

2. Project Impacts

2.1 Survey of Project Impacts

19. PIUs, in association with the land resources bureau, the departments of agriculture and forestry, with assistance of the consultants, conducted a comprehensive survey of the project area from July to August 2010. The survey covered the land rights, present status land uses, and livelihood of affected households. The socioeconomic conditions of the project output areas were analyzed. The affected persons (APs) were interviewed.

20. A household survey was administered to identify the assets of the APs. The survey covered the 25 households (including 24 households in SFF and 1 household in YRBNNR, with a sampling rate of 18% of the total), and 5 households of the seasonal workers of YRBNNR (with a sampling rate of 33% of the total).

2.2 Impacts

21. The project impacts will be limited within the administrative boundaries of the national nature reserves and forest farms. DMNNR and DFF outputs will have no resettlement impacts.

1. Wetlands Protection at YRBNNR

22. The fishpond is located in the core zone of the nature reserve. According to the lease agreement, the fishpond should be managed in an extensive way to serve as a habitat for the rare birds. The average annual output is only 6,000 kilograms (kg) per ha, compared to an average annual output of 15,000 kg per ha with intensive commercial aquaculture.

2. Coastal Forest Improvement at SFF

23. The project implementation will involve land use changes for 240.1 ha of land, including 220.9 ha of farmland land and 19.2 ha of agroforestry land. Of the affected farmland, 119.5 ha are allocated to forest workers as farmland (1.1 ha per forest worker). The remaining affected 100.4 ha of farmland and 19.3 ha of intercropping (agroforestry) land are contracted to farmer workers and farmers from surrounding villages on a voluntary basis. The forest farm collects CNY50 to CNY650 each *mu* as leasing fee annually in the form of a lease contract (Appendix 3). Crops such as wheat, corn, soybean, medicinal herbs, white gourd, and cotton are planted on the farmland and agroforestry (intercropping) land with two harvests a year.

2.3 Affected Persons

24. The project will affect 156 households directly, with 493 family members.¹ The YRBNNR output will directly affect 16 contractor and seasonal workers, with 54 family members. About 90% of the contractor's aquacultural surface and 10% of his income will be affected, while 20% of the income of the seasonal workers will be affected, for which livelihood rehabilitation measures are also needed. In SFF, 140 farm workers and contractors will be affected along with their 439 family members. About 30% of their land and 20% of the income of the affected families will be affected. The livelihood rehabilitation plans for these APs are described in sections 6.1 and 6.2. The details of the APs are included in Table 2-1.

Table 2-1: Affected Persons

No.	Project Output	Affected Directly			No. of Affected Households	Family Members
		Farm Workers	Outside Contractors	Seasonal Workers		
1	Coastal forest improvement at SFF	112	28	0	140	439
2	Wetlands protection at YRBNNR	0	1	15	16	54
3	Wetlands protection at DMNNR	0	0	0	0	0
4	Coastal forest improvement at DFF	0	0	0	0	0
Total		112	29	15	156	493

25. According to the survey, the heads of the 156 households are all male. The affected 493 persons include 42 students (8.5%), 63 persons servicing in enterprises and public institutions other than PIUs (12.8%), 246 engaged in agricultural and husbandry production and business inside and outside the project area (49.9%), and the other 143 dependents (28.8%).

¹ The directly affected person refers to those who cannot go on with farming and aquatic breeding on the leased state-owned land and water surface (fish pond) and seasonal workers because of project implementation.

26. Among the affected family members, 231 are women accounting for 47%. The affected female persons include 163 in the labor force (71% of the affected women), of which 30 are women workers in enterprises and public institutions outside the project area (19%), and the remainder in agricultural and husbandry production and business inside and outside project area.

2.4 Temporary Land Occupation

27. Only the coastal forest improvement at DFF output will occupy 20-*mu* state-owned land temporarily for the infrastructure construction. The land is unused at present and needs no compensation.

2.5 Special Facilities and Ground Attachments

28. The wetlands protection at YRBNNR output will require the relocation of 40 telecommunication poles, 10 wire poles of 10 kilovolts (KV) and 5 poles of 380 KV. Their property rights belong to the State Power Grid and local telecommunication departments, who will be compensated accordingly.

3. Socioeconomic Conditions of the Project Area

3.1 Socioeconomic Indicators

29. Presented in Table 3-1 are the socioeconomic indicators in the project city and district.

Table 3-1: Socioeconomic Indicators of Affected Province, City, Counties (District)

	Indicator	Unit	Jiangsu	Yancheng	Dafeng	Tinghu
1	Registered population	million	77.2	8.1237	0.7241	0.8732
1.1	Female population	million	38.6	3.4818	0.3608	0.4211
1.2	Non-agricultural population	million	42.9	3.8994	0.3328	0.4248
2	Gross domestic product	CNY billion	3,445.7	191.7	24.3	18.0
2.1	Primary industry	CNY million	226,186	33,040	4,744	3,019
2.2	Secondary industry	CNY million	1,856,637	92,374	10,982	11,833
2.3	Added value of industry	CNY million	1,646,494	78,995	9,302	10,183
2.4	Tertiary industry	CNY million	1,362,907	66,286	855	6,320
3	National investment in fixed assets	CNY million	1,894,988	85,698	9,622	7,956
4	Total volume of retail sales of consumption goods	CNY million	923,538	64,481	6,878	9,183
5	Above-scale export value	USD million	338,831	1864	263	133
6	Actually utilized foreign capital	USD million	25,323	1,044	194	104
7	Fiscal revenue of local governments	CNY million	322,878	12,683	1,329	1,603
8	Per capita disposable income of urban residents	CNY'000	14.1	14.9	14.9	16.1
9	The per capita disposable income of rural residents	CNY'000	6.7	7.7	8.8	9.7

Source: Jiangsu Statistical Yearbook 2010.

3.2 Socioeconomic Profile of APs of the Coastal Forest Improvement at SFF Output

30. A total of 20 farm workers and 4 outside contractors have been interviewed. The details of the APs are included in Table 3-2.

Table 3-2: Basic Conditions of the APs

No.	Type	Age	Sex	Type of Hukou	Family Members	Contract Land (<i>mu</i>)	
						Farmland	Intercropping Land
1	Farm worker	49	Male	Non-agricultural	3	13	50
2	Farm worker	36	Male	Non-agricultural	5	13	70
3	Farm worker	36	Male	Non-agricultural	4	13	70
4	Farm worker	54	Male	Non-agricultural	9	13	150
5	Farm worker	44	Male	Non-agricultural	3	26	10
6	Farm worker	35	Male	Non-agricultural	4	13	40
7	Farm worker	42	Male	Non-agricultural	3	13	10
8	Farm worker	53	Male	Non-agricultural	2	13	/
9	Farm worker	45	Male	Non-agricultural	5	13	30
10	Farm worker	50	Male	Non-agricultural	3	13	/
11	Farm worker	37	Male	Non-agricultural	5	13	/
12	Farm worker	36	Male	Non-agricultural	4	13	/
13	Farm worker	48	Male	Non-agricultural	6	13	20
14	Farm worker	43	Male	Non-agricultural	3	13	10
15	Farm worker	35	Male	Non-agricultural	4	13	/
16	Farm worker	39	Male	Non-agricultural	3	1	50
17	Farm worker	58	Male	Non-agricultural	1	/	20
18	Farm worker	45	Male	Non-agricultural	4	13	10
19	Farm worker	49	Male	Non-agricultural	3	26	/
20	Farm worker	36	Male	Non-agricultural	5	13	30
21	Contractor	44	Male	Agricultural	4	/	30
22	Contractor	45	Male	Agricultural	3	/	50
23	Contractor	44	Male	Agricultural	5	/	50
24	Contractor	33	Male	Agricultural	3	/	40
Total					94	248	800

Note: Hukou means official household registration.

31. As for the affected farm workers, each one has 16 *mu* of farmland. The forest farm does not pay their salaries, and the income from the allowance land is at full disposal of the farm workers. The forest farm provides CNY1,500 of security for each child or dependent annually. When the farm worker retires, the allowance land will be reclaimed and re-contracted to other farm worker or outside villagers. The retired farm worker will receive a monthly pension of between CNY1,600 and CNY2,000.

32. According to the survey, the forest farm leases out farmland and agroforestry land (other than the basic allowance land for the workers) to farm workers and villagers from surrounding villagers through bidding on a voluntary basis. The bid winners sign a one-year lease and pay CNY50 to CNY650 (depending on the quality of land) leasing fee to the forest farm. When the contract expires in 1 year, the land will be reclaimed and invite new tenders in next round. According to the survey, the outside contractors have farmland in their home villages. They are flexible in that the land leases with the forest farm are additional income opportunities. Usually, the outside contractors in the present year may not contract in the following year.

33. According to the statistics of the family income and expenditure of the 24 interviewed households, the per capita annual net income is CNY22,068. The per capita annual expenditure is CNY16,895. Detailed information on income and expenditures is provided in Table 3-3.

Table 3-3: Family Income and Expenditure of SFF APs

Item		Income (CNY)		%
		Total	Per Capita	
Family Annual Income	Labor salaries	580,000	6,170	27.96
	Individual business income	120,000	1,277	5.79
	Agricultural income	1,360,000	14,468	65.56
	Other income	14,400	153	0.69
	Total	2,074,400	22,068	100
Family Annual Expenditure	Electric power	15,800	168	0.99
	Life water	2,300	24	0.15
	Life expense	108,000	1,149	6.80
	Clothing	42,000	447	2.65
	Agricultural production	1,180,000	12,553	74.30
	Business	85,000	904	5.35
	Education	110,000	1,170	6.93
	Medical treatment	3,200	34	0.20
	Transportation	9,800	104	0.62
	Miscellaneous	32,000	340	2.01
	Total	1,588,100	16,895	100
	Balance		486,300	5,173

3.3 Socioeconomic Profile of APs of the Wetlands Protection at YRBNNR Output

34. The household who has contracted the fish farm in YRBNNR was interviewed. Five seasonal workers (33% of the affected seasonal workers) were also interviewed.

35. According to the survey, the income of the affected contractor comes from 14,918.18 *mu* of fishpond in YRBNNR, 1,000 *mu* of fishpond outside the nature reserve, 9 *mu* of farmland in a nearby village, and a feed processing factory. The annual income of the family is about CNY3,000,000. The income of seasonal families includes wages of outside work, wages of local work, and agricultural income. The average annual net income of the families is about CNY47,000. The seasonal workers in the affected fish farm work 90 days per year, and earn CNY100 a day and CNY9,000 per year, which accounts for about 20% of the average family annual income.

4. Legal Framework and Policies

36. The project policies are compiled in terms of the relevant laws and regulations of the PRC, Jiangsu province, Yancheng municipality, and local governments, as well as the Asian Development Bank's (ADB) Safeguard Policy Statement (2009). The project resettlement activities shall follow close to the provisions in the resettlement plan (RP). If any changes occur during the process of implementation, it shall be approved by ADB in advance.

4.1 PRC Regulatory Requirements

37. The major applicable PRC laws and regulations are as follows:

- (i) Land Administration Law of the People's Republic of China (validated on 28 August 2004);
- (ii) Temporary Regulation for Allocation and Management of Land Use Rights (promulgated by the State Land Administration Bureau (No.1 [1992]), validated on 8 March 1992); and

- (iii) Land Administration Regulation of Jiangsu Province (validated on 1 January 2001).

38. Article 54 of the PRC's Land Administration Law requires that the construction unit that wishes to use state-owned land for construction shall get it by such means of compensation as assignment. However, land to be used for the following purposes may be allocated with the approval of the people's government at or above the county level: (i) government land use and military land use; (ii) city infrastructure land use and public interest land use; (iii) land uses for key energy, transportation, and water conservancy projects supported by the State; and (iv) other land use prescribed in laws and administrative regulations.

4.2 ADB's Policy on Involuntary Resettlement

39. The major ADB's policy provisions on involuntary resettlement are as follows:

- (i) To avoid the involuntary resettlement if it is feasible;
- (ii) Where population displacement is unavoidable, it should be minimized by exploring all viable project options;
- (iii) Any involuntary resettlement should, as far as possible, be conceived and executed as a part of a development project or program; and RP should be prepared with appropriate time bound actions and budgets. Resettlements should be provided sufficient resources and opportunities to reestablish their homes and livelihoods as soon as possible;
- (iv) The APs should be fully informed and closely consulted on resettlement and compensation options. The APs should be consulted on compensation and resettlement options, including relocation sites and socioeconomic condition restoration. Resettlement information should be disclosed to the APs timely; specific opportunities should be provided; and a participatory strategy for project planning, implementation, and monitoring and evaluation (M&E) should be developed. Procedures for grievance redress should be established. Where adversely APs are particularly vulnerable, resettlement and compensation decisions should be preceded by a social preparation phase to build up the capacity of the vulnerable people to deal with the issues;
- (v) The APs should be identified and recorded at the earliest possible point in the project preparation. This should normally be the census or survey that undertaken to set the cut-off date for determining eligibility for entitlements, which can provide supplement in separating the genuine from the non-genuine cases;
- (vi) The resettlement cost should be included in the project costs and benefits. It includes the compensation, the costs of social preparation and livelihood programs, as well as the incremental benefits compared with the nonproject situation. Resettlement budget includes the costs of planning, administration, supervision, M&E, and tax and fees of land use; and
- (vii) Compensation at replacement cost and other resettlement entitlements will be provided before physical or economic displacement.

4.3 Entitlement Matrix

40. According to the PRC's and ADB's regulatory and policy requirements, the entitlements of the APs are summarized as follows:

Types of Impact	Project Output	Impact Degree	Affected Area	Resettlement and Compensation Policy	Compensation Standard
Land contractors (forest farm workers)	Coastal forest improvement at SFF	112 farm staffs	SFF	Through land adjustment, to ensure workers have the same 16 <i>mu</i> basic contracting land per person; the retired workers enjoy a pension ranging from CNY1,600 to CNY2,000; provide jobs, training, employment information.	Land for land
Land contractors (nonforest farm contractors)	Coastal forest improvement at SFF	28 HHs	SFF	Through land adjustment, to get a new contract land; provide jobs, training, employment information.	Land for land
Water surface contractor and seasonal workers of the nature reserve	Wetlands protection at YRBNNR	1 HH (contractor) 15 seasonal workers	YRBNNR	On contractors' voluntary basis, obtain the contract of priority provision of 1,000 <i>mu</i> advanced fish farm. To provide employment training and employment information.	Replacement of fishpond
Infrastructure and ground attachments	Wetlands protection at YRBNNR	Telecom/utility poles	YRBNNR	The PIU should pay to the property units at replacement cost. The property institutions will restore them on their own, or have them restored or reconstructed by the PIU.	Payment at replacement cost

HH = household, PIU = project implementation unit, SFF = Sheyang forest farm, YRBNNR = Yancheng rare birds national nature reserve.

5. Compensation Standards

41. The compensation standards of this project are formulated according to the above-mentioned legal framework along with actual conditions of the project-affected cities and Jiangsu province.

42. This project will not require rural collective land acquisition and rural houses demolition. Only the wetlands protection at YRBNNR output will involve the relocation of special facilities.

43. The land to be used in the proposed project belongs to the state, while the PIUs keep the land use rights and the power to make decision on the matters of land. The proposed project will not change the property of land, and involves no land acquisition. In the scope of the project

output construction of SFF, although the contracted land of 112 farm workers and 28 outside contractors will be reclaimed, the contract is signed on an annual basis. Moreover, SFF will arrange other land at same quality and quantity for them to lease and plant prior to the project construction. Therefore, neither rural collective land occupation nor state-owned land use right transfer will be involved in the project, so no compensation will be required according to the relevant laws and regulations of the PRC.

5.1 Compensation Standard for Temporary Land Occupation

44. The coastal forest improvement at DFF output will occupy 20 *mu* of state-owned land temporarily. The land use right belongs to the forest farm. Since it is vacant at present, no compensation arises.

5.2 Compensation Standards for Affected Infrastructure and Ground Attachments

45. Presented in Table 5-1 are the compensation standards for special facilities in the wetlands protection at YBRNNR output. The compensation standards are determined on the base of the reconstruction cost and consultation with the owner.

Table 5-1: Compensation Standards for Special Facilities under the Wetlands Protection at YBRNNR Output

Item	Unit	Quantity	Compensation Standard (CNY/unit)
Telecommunication pole	No.	40	5,000
10-kilovolt electricity pole	No.	10	5,000
380-kilovolt electricity pole	No.	5	10,000

6. Production and Livelihood Rehabilitation Plan

46. The SFF and YBRNNR outputs will affect forest farm workers and outside contractors (villagers) who have leased some state-owned land or water surface in the project areas. The DFF and DMNNR outputs will have no adverse impact on local livelihood, so there is no need for rehabilitation measures.

6.1 Livelihood Rehabilitation Plan for APs of the Coastal Forest Improvement at SFF Output

47. SFF will allocate other farmland and inter-farmland at same quality and quantity for the APs to lease prior to January 2012 to ensure their autumn sowing and avoid their loss as well. SFF sets aside a piece of land of 2,780 *mu* in the nonproject area of Zhanan and Fangqiang sections. The planting condition of the land is similar with the affected land. It was planned for development and was not included in the list of the proposed project areas. The affected 112 farm staffs can obtain 16-*mu* land allowance from the Zhanan and Fangqiang sections under the principle of proximity. There is about 1,000 *mu* new farmland and intercropping land in SFF, due to the tree-cutting plan by the Jiangsu forestry bureau. When a farm worker retires, s/he shall return the 16-*mu* land allowance and receives a monthly pension between CNY1,600 and CNY2,000. The reclaimed land will be reallocated to other workers. There will be more than 3,780 *mu* land that can be used for land adjustment in SFF by the date of 31 January 2012. The forest farm will have finished the adjustment work by 31 December 2011. The livelihood and income of the APs will not be affected negatively.

48. For those 112 affected farm workers, SFF will ensure that no change will be made to each farm worker with the 16 *mu* basic allowance farmland. Before January 2012 and upon expiry of land contracts, land will be reallocated to the farm workers to meet the standard of 16 *mu* each person. Before 31 December 2011, the affected farm workers and outside contractors will sign new land contracts with the forest farm voluntarily. The above-mentioned measures will help the APs continue their livelihood and maintain their income.

49. The project construction is scheduled to last about 5 years; and it will be carried out in stages in accordance with tree species, seasons, and regions. During project implementation, the land for intercropping will disappear gradually, that is, the land for intercropping will be re-planted with trees gradually from the first to fifth year of the project implementation. The affected farm workers and outside contractors will receive the following rehabilitation measures:

50. **Temporary employment during project implementation.** The time for agricultural production usually lasts 50 to 60 days a year for those affected farm workers and outside contractors. Due to the features of crop planting and managing, the time for agricultural production is intermittent (although it is short in total), which prevents the APs going out for other works and earning additional income. The income from agriculture comprises 65% of the total income of the APs. For the Thrust Habitat Recovery Engineering, Ornamental Plants Garden, and Traditional Forestry Planting Engineering, plenty of trees are to be planted, that needs about 100 planters, 30 rangers, and 50 civil workers. The affected farm workers and outside contractors will be provided with the jobs at their preference, with CNY100 temporary wages personally a day, so that they will increase their labor income and keep the original agricultural income.

51. **Intercropping during project implementation.** The project is proposed to re-plant trees on farmland and inter-farmland to achieve the function of tree species diversity and ecological shelter forest. During the period of project design, the livelihood restoration of the APs has been considered comprehensively. Trees will be planted every 0.5 meters (m) from roots for 1–2 years old trees and 1 m from roots for 3–4 years old trees, so as to turn the original farmland into new inter-farmland which will be conditioned well for intercropping in 9 years. The farm will organize a lecture given by agriculture and forestry experts at free of charge after the annual land tender meeting, to introduce new crop species and skills for intercropping and the market demand to improve the living standards of affected households.

52. **Intercropping, employment training and service, and permanent employment during operation.** After the project completion, the following three steps will be adopted to restore the livelihood of the APs: (i) land re-adjustment in the forest farm: as required by the Jiangsu forestry bureau, the forest farm will cut and re-plant trees of 1,000 *mu* every year and level the land into new farmland. The newly planted tree land will be adjusted suitable for intercropping to meet the need of plantation by farm workers and outside contractors; (ii) employment training and service: the forest farm will coordinate with the employment training departments of Tinghu district and Yancheng municipality to provide timely employment information of labor-intensive industries. The matured children of farm workers and the farm workers themselves of 30–40 aged will have opportunities to be employed to increase their families' income. These jobs do not need very high-skilled labor with high educational level. The numbers of people willing to attend technical training and the training contents is difficult to be decided at present; (iii) post-implementation benefits: after the project construction completion, a total of 539 work opportunities will be generated, such as plant garden guide, ranger, and forest fireman. Workers of the farm will be given priority to take the jobs.

6.2 Livelihood Rehabilitation Plan for APs of the Wetlands Protection at YRBNNR Output

54. This output will affect one household with five family members. They have contracted 14,918.8 *mu* water surface in the nature reserve for aquaculture which brings about CNY300,000 income annually.

55. The details of the extensive fishpond production and income are presented as follows:

Type of product: Grass Carp (two harvests per year);

Yield per *mu*: 200 kg/*mu*/year;

Market price in year 2010: CNY6/kg;

Feed demanded by Grass Carp per kg: 0.8 kg;

Feed price: CNY6/kg;

Medicine cost: CNY30/*mu*;

Contract fee: CNY130/*mu*/year;

Labor cost: CNY20/*mu*/year;

Civil work cost: CNY140/*mu*; and

Equipment cost: CNY140/*mu*.

56. Annual net income of the APs: $(400 \times 6 - 400 \times 0.8 \times 6 - 30 - 130 - 20 - 140 - 140) \times 14,918 =$ CNY298,360

57. The total annual income of the affected family is about CNY3,000,000, and the income from the fishpond to be affected comprises about 10% of the total income.

58. They also hire 15 seasonal workers, working 3 months for them every year and earning CNY9,000 per person.

6.2.1 Livelihood and Income Restoration for Affected Aquaculture Household

59. As for the affected aquaculture household: (i) the Sea Dike Management Bureau (SDMB) is developing food-supplied fishpond in the west of the core zone of the nature reserve (Appendix 4). The nature reserve has made an agreement with SDMB on that the latter will provide 1,000 *mu* of food-supplied fishpond to the affected household in priority to his own will from 1 January 2013 (Appendix 5). This piece of fishpond is located outside the nature reserve, whose aquaculture condition is better than the original one in the reserve and the yield will reach to 1,000 kg annually. The livelihood of the affected household will be restored, and details are as follows:

Available fine fishpond to the APs: 1,000 *mu*;

Type of product: Grass Carp;

Yield per *mu*: 1,000 kg/*mu*/year;

Future market price: CNY8/kg;

Feed demanded by Grass Carp per kg: 0.75 kg;

Feed price: CNY7/kg;

Medicine cost: CNY100/*mu*;

Contract fee: CNY800/*mu*/year;

Labor cost: CNY100/*mu*/year;

Civil work cost: CNY300/*mu*; and

Equipment cost: CNY1,000/*mu*.

60. The annual income of the APs will be $(1,000 \times 8 - 1,000 \times 7 \times 0.75 - 100 - 800 - 100 - 300 - 1000 \times 1,000) = \text{CNY}450,000$.

61. In addition, (ii) the affected household has another 1,000 *mu* fish farm and a feed processing plant outside the nature reserve, the yearly income from which is about CNY2,700,000 and will not be decreased by the project; and (iii) the nature reserve will provide technical assistance on fine aquaculture, if necessary.

62. With the above-mentioned measures, the income of the affected household is to be added through the project implementation and will exceed the previous level.

6.2.2 Livelihood and Income Restoration for Seasonal Workers

63. The affected household hires 15 seasonal workers from surrounding villages, working 3 months every year: (i) 10 of them will continue working in the 1,000 *mu* fish farm of the affected household outside the nature reserve after the project construction; (ii) if the affected household signs contract with SDMB, the other five workers will go on working in the contracted fish farm of SDMB; and (iii) these 15 workers may seek for new job opportunities from the surrounding villages. These three measures will protect the livelihood of the seasonal workers.

64. There will be 100 temporary employment opportunities to be generated from YRBNNR output: (i) the affected seasonal workers will be given the opportunities in preference, so that they will earn more CNY100 a day, apart from the income from agriculture and working for aquaculture households; and (ii) the affected seasonal workers will be provided technical training and obtain new job opportunities from the nature reserve or other units. With the measures, the 15 affected persons will increase their income.

6.3 Security of Women's Rights

65. The rights of women will be safeguarded through a series of measures as follows:

- (i) The affected women will be well informed of the livelihood restoration activities, and be encouraged to participate in the public consultation and livelihood rehabilitation planning;
- (ii) The affected labor force of woman will be given the priority to get technical training so as to protect their economic status from harming;
- (iii) In the process of project construction, make sure that a certain number of women (at least 40% of the unskilled labor) will gain the unskilled work opportunities. In addition, woman workers shall be paid the same as men if they take the same work; and
- (iv) In the process of project operation, the affected women will have priority to get the jobs such as cleaners and tree protectors to increase their income.

6.4 Affected Infrastructure and Ground Attachments

66. The PIUs shall provide compensation, and the facility property units shall take responsibility to displace and rehabilitate them.

67. For the displaced special facilities, rehabilitation measures should be adopted in advance. Actions will be taken in accordance with local conditions to ensure safety, efficiency, and accuracy; and to avoid negative impacts on local residents.

7. Implementation Organization and Schedule

7.1 Institutional Arrangement

68. In this project, the institutions which are in charge of resettlement plan management, implementation, and monitoring; and their roles and responsibilities are as follows:

69. The Jiangsu provincial PMO (JP MO) is accountable for resettlement activity, making relevant policies, reviewing RPs, and preparing semiannual resettlement monitoring reports to ADB.

70. The Yancheng municipal and local PMOs are responsible for implementation management of RPs, management of resettlement funds, organization and coordination, and implementation of internal monitoring.

71. PIUs are responsible for resettlement investigation, preparation, and implementation of RPs.

72. Land management department and/or bureaus are responsible for approving formalities of land, and coordination, management, supervision, and arbitration.

73. The design institutes are responsible for project design, and confirming project impact scope.

74. As a capacity development measure, the loan implementation support consultants will provide training, advice, and supervision to the agencies responsible for RP implementation and to the external monitoring agency.

75. All institutions will arrange staff to do coordination and organization work for each output. These people are experienced in resettlement. Their basic information is shown in Table 7-1.

Table 7-1: Information of Project Staff

Province/City	Name	Department	Post
Jiangsu province	Zhao Ting	Jiangsu environmental protection department	Deputy Director General
Jiangsu province	Wang Hua	Jiangsu environmental protection department	Deputy Director
Jiangsu province	Mr. Jin	Jiangsu environmental protection department	Director
Jiangsu province	Zhai Ke	Jiangsu forestry bureau	Chief
Jiangsu province	Chen Jianlin	Jiangsu environmental protection department	Director
Jiangsu province	Fan Luhuan	Jiangsu environmental protection department	Staff
Yancheng municipality	Yu Wenhua	Yancheng development and reform commission	Director
Yancheng municipality	Sun Qilu	Yancheng finance bureau	Deputy Secretary
Yancheng municipality	Luo Shoufu	Yancheng environmental protection bureau	Deputy Secretary
Tinghu district	Wei Zhihui	Sheyang forest farm	Deputy Director

Province/City	Name	Department	Post
Yancheng municipality	Sun Ming	Yancheng rare birds national nature reserve	Director
Yancheng municipality	Chen Hao	Yancheng rare birds national nature reserve	Assistant Director
Dafeng city	Mr. Chu	Dafeng forest farm	Director
Dafeng city	Yin Ronghua	Dafeng forest farm	Deputy Director
Dafeng city	Ding Yuhua	Dafeng milu national nature reserve	Director

7.2 Implementation Schedule

76. According to the schedule, this project will be completed from 2012 to 2016 within 5 years by phases. The resettlement schedule is linked with each output schedule. The main work of resettlement is planned to begin in 2nd half of 2012 and finish in 2013. Details are shown in Table 7-2.

Table 7-2: Resettlement Implementation Schedule

Phase	Task	YRBNNR	SFF
Preparation	Determine affected scope of land		
	Physical investigation		
	Preliminary social economic survey	Jul 2010	Jul 2010
	Negotiation	Dec 2010	Dec 2010
	Resettlement plan preparation	May 2011	May 2011
	Resettlement plan disclosure	Aug 2011	Aug 2011
	Approve resettlement plan	Oct 2011	Oct 2011
Implementation	Contract expiry announcement	Nov 2012	Oct 2011
	Income restoration	2012–2015	2012–2015
	Reallocation of contracts	2013	Jan 2012
	Permanent employment provided	2016	2016
Monitoring and Evaluation		2012–2016	2012–2016

8. Budget and Management

8.1 Budget

77. There are no direct resettlement costs in the wetlands protection at DMNNR, and coastal forest improvement at DFF and SFF outputs. There are direct resettlement costs in the wetlands protection at YRBNNR output because of the displacement of special facilities.

78. Considering about the planning and design costs in project preparation, the state-owned land use contract rights conversion during resettlement implementation, the socioeconomic impact on the APs should be taken into consideration according to ADB's policy. The need for appropriate internal and external monitoring and evaluation, management, as well as unforeseen changes in other factors, the budget is listed accordingly.

79. Total project resettlement budget is CNY1.8 million. The resettlement costs are included in the overall project engineering cost. The detailed resettlement budget is shown in Table 8-1.

Table 8-1: Resettlement Budget (CNY'000)

No.	Item	YRBNNR	SFF	Subtotal
1	Infrastructure and ground attachments	300	0	300
2	Survey and design	300	200	900
3	External M&E	100	100	400
4	Internal M&E	100	100	400
5	Implementation administration fee	100	100	400
6	PIUs' staff training	100	200	600
7	Contingency	100	100	400
Total		1,100	700	1,800

M&E = monitoring and evaluation, PIU = project implementation units, SFF = Sheyang forest farm, YRBNNR = Yancheng rare birds national nature reserve.

Note: This budget does not include the budget for employment or livelihood training by PIUs and government organizations.

8.2 Fund Allocation and Management

80. All costs related to resettlement should be included in overall budgetary estimate of the project. The resettlement compensation and other costs will be allocated to related departments and individuals through offices by PMOs. For smooth resettlement, financial supervision organizations at all levels should be established to ensure that the money will be disbursed in time.

9. Participation, Consultation, and Grievance Redress

9.1 Participation

81. The objectives of consultation and participation are (i) to formulate project-targeted policies and implement rules on resettlement according to national, provincial, and municipal policies and regulations; and (ii) to prepare detailed RP and organize implementation works well to safeguard the right and interests of displaced individuals and achieve the goal of proper resettlement. Public participation and broad-based consultation are required at the stages of policy making, and RP preparation and implementation.

82. At project preparation of feasibility study, JPMO has repeatedly sought suggestions and comments on land acquisition and resettlement from the governments, and mass organizations at all levels of Yancheng municipality, counties, and districts, and PIUs.

83. At project preparation, the scheme of APs' public participation is shown in Table 9-1.

Table 9-1 Participation Scheme

Date	Place	Participant	Contents	Remarks
Aug 2010	PMOs, PIUs, community of APs	PMO officials, PIUs' staffs, APs, the project team of NRCR	Socioeconomic survey, project impact, and the physical survey	Project impact at the time of survey
Sep 2010	PMOs, PIUs, community of APs	PMO officials, PIUs' staffs, APs, the project team of NRCR	Compensation and resettlement policy; preliminary RP	Preliminary consultation on compensation policy
Dec 2010	PMOs, community of APs	PMO officials, APs	Compensation and resettlement policies, RP	Further consultation on compensation and rehabilitation policies

Date	Place	Participant	Contents	Remarks
Mar 2011	PMOs, community of APs	PMO officials, APs	Individual problem on resettlement policies and plan	Supplementary consultation on individual problems

AP = affected person, NRCR = National Research Center for Resettlement, PMO = project management office, PIU = project implementation unit, RP = resettlement plan.

84. From July to September 2010, the JPMO and PIUs organized a preliminary investigation on house conditions and socioeconomic status in the project-affected area. The directors of PIUs and representatives of APs joined the investigation and provided their comments and suggestions. A survey on socioeconomic status and public attitudes and social psychology was carried out in the meantime. The investigation took the public's willingness and attitudes of APs into consideration, which has been expressed thoroughly in project design and the RP.

85. In the future, the following steps and methods will be employed to encourage public participation and consultation:

86. **RP disclosure.** The project RP has been distributed to each PIU and to all APs in August 2011. PMOs have also disclosed on local newspapers to announce the project sites.

87. **To invite representatives of APs to join the resettlement activities.** Representatives are from among the affected households. They will solicit suggestions and requirements from APs and communicate with related departments regularly. The PMOs will reply to their questions, and consider their advice and suggestions seriously. Representatives will be chosen to attend various stages of detailed investigation to reflect the interests and voice the opinions of APs and to ensure fair and transparent resettlement procedures.

88. **Consultation meetings.** In the process of livelihood recovery, consultation meetings with APs, including women representatives (at least 30%), have been conducted to introduce current status, ask for their comments and suggestion, and make records for future consideration.

89. Further consultation with APs is necessary to reply and address their questions and requirements on livelihood recovery in time, seek to solve all the problems before the RP implementation. Each affected contractor and seasonal worker will have opportunity to discuss with resettlement implementation agencies at the stage of public participation. The plan for public participation and policy disclosure is shown in Table 9-2.

Table 9-2: Information Disclosure Plan

Document	Language and Form	Date	Location
Introduction of the project	Chinese	Oct 2011	Website
Announcement of RP	Chinese	Aug 2011	PIUs
RP	Chinese, English	Aug 2011	PIUs

PIU = project implementation unit, RP = resettlement plan.

9.2 Grievance Redress

90. In the preparation and implementation of the RP, an appeal mechanism is established to provide the APs. The sequential steps are as follows:

91. **Step 1.** If they feel dissatisfied with resettlement measures, the APs should appeal to PIUs in verbal or written form; oral complaint should be documented by PIUs. PIUs should resolve the complaint in 2 weeks.

92. **Step 2.** If they are still unsatisfied with the decision in step 1, the APs should appeal to office and/or management organization such as the local PMO and JPMO, who should make dispute decision in 2 weeks.

93. **Step 3.** If they are still unsatisfied with the decision in step 2, they should appeal to the administrative authorities, such as the Jiangsu provincial land administration bureau, with jurisdiction for arbitration according to the PRC's Administrative Procedure Law.

94. **Step 4.** If they are still unsatisfied with the arbitration decision, they should prosecute to civil court according to the PRC's Law on Civil Procedures.

95. The APs may appeal on any aspect of resettlement activity. The APs have been informed the above appeal steps through public meetings and other forms, so that they will be conscious of their legal right of appealing. JPMO and the Yancheng municipal PMO (YPMO) will organize all the comments and suggestions on resettlement action into information brief, and send it to relevant resettlement agencies for review and action. All the agencies will accept grievance of the APs at free of charge.

96. The complainants have the option to address their concerns to the ADB project team either at the headquarters or at the ADB resident mission in Beijing, PRC (PRCM) at any point of time in written, verbal, or any other form, if the grievance redress mechanism cannot provide satisfactory resolution of the grievance. If two or more households thereafter think that they have suffered direct, material, and adverse harm; and believe that it stemmed from ADB's lack of compliance with its policy and/or the RP, they may submit a request to ADB at any time, following the procedures set out in ADB's Accountability Mechanism (<http://www.adb.org/Accountability-Mechanism>).

97. All grievances, actions, and results will be logged by use of the grievance action form as included in Appendix 6. They will be reported in the project progress report and the semiannual resettlement monitoring report of the corresponding period. The grievance action forms will also be made available to the complainants, key stakeholders, and responsible agencies.

10. Monitoring and Evaluation

98. In accordance with ADB's involuntary resettlement policy requirements, the PIUs are required to monitor and evaluate regularly the project resettlement action, to ensure a smooth implementation of the RP and achieve the goal of proper resettlement. Monitoring includes internal monitoring by resettlement agencies and independent external monitoring.

10.1 Internal Monitoring

99. The monitoring mechanisms will be implemented by JPMO, local PMOs, and PIUs. According to the RP, they will carry out the internal monitoring to resettlement activities.

100. During implementation, PIUs should collect information of APs as well as submit timely activity report to JPMO and local PMOs for continuous supervision on resettlement implementation. JPMO and local PMOs will inspect the implementation process regularly.

- (i) Livelihood rehabilitation of state-owned land adjustment;
- (ii) Compensation payment disbursement;
- (iii) Employment of APs;
- (iv) Restoration and reconstruction of infrastructure;
- (v) Staffing, training, working schedule, and effectiveness of resettlement agencies; and
- (vi) Registration, handling, and resolution of complaint and appeal from APs.

101. Under the supervision of the YPMO and local PMOs, the PIUs will prepare quarterly internal monitoring reports and submit to the JPMO. JPMO will provide the quarterly internal monitoring reports to the external monitor for review and verification.

10.2 External Monitoring

102. JPMO will retain an independent monitor to carry out external monitoring and evaluation. The independent monitor will monitor and evaluate the implementation of resettlement activities once every 6 months, including resettlement progress, quality, utilization of funds, and restoration of incomes of APs. The APs' living and production will be tracked by external monitor. The monitor will submit M&E report to the JPMO and ADB.

103. The monitoring procedures and contents are as follows:

- (i) To prepare working outline for M&E;
- (ii) To prepare survey outline, questionnaire forms, and recording cards of APs, typical units;
- (iii) To design sampling investigation scheme: Sampling scale: 20% of affected contractors and workers;
- (iv) To conduct a baseline survey: A baseline survey will be carried out on the resettlement affected by the project, so as to obtain basic data about their living standards (including living, business, and income);
- (v) To conduct M&E survey: (a) evaluation of resettlement implementation, including the PIUs' implementing capacity and working efficiency; (b) overseeing on resettlement progress; (c) analysis of the impact of land adjustment; (d) tracking survey and evaluation on income level of APs (20% sample scale); (e) public consultation, including public participation activities of the APs during the period of the RP implementation, and the effectiveness of public participation; and (f) grievance redress of APs, including the registration, handling and resolution of APs' complaints;
- (vi) To conduct livelihood and/or income comparison analysis;
- (vii) To verify the internal monitoring information;
- (viii) To prepare M&E report in accordance with the monitoring plan.
- (ix) The monitoring parameters are as follows: (a) APs: production, income change rate, employment rate, satisfaction degree of resettlement; (b) compensation and rehabilitation: disbursement rate of compensation, function restoration rate; (c) public participation: frequency, content, impact; and (d) complaints resolution.

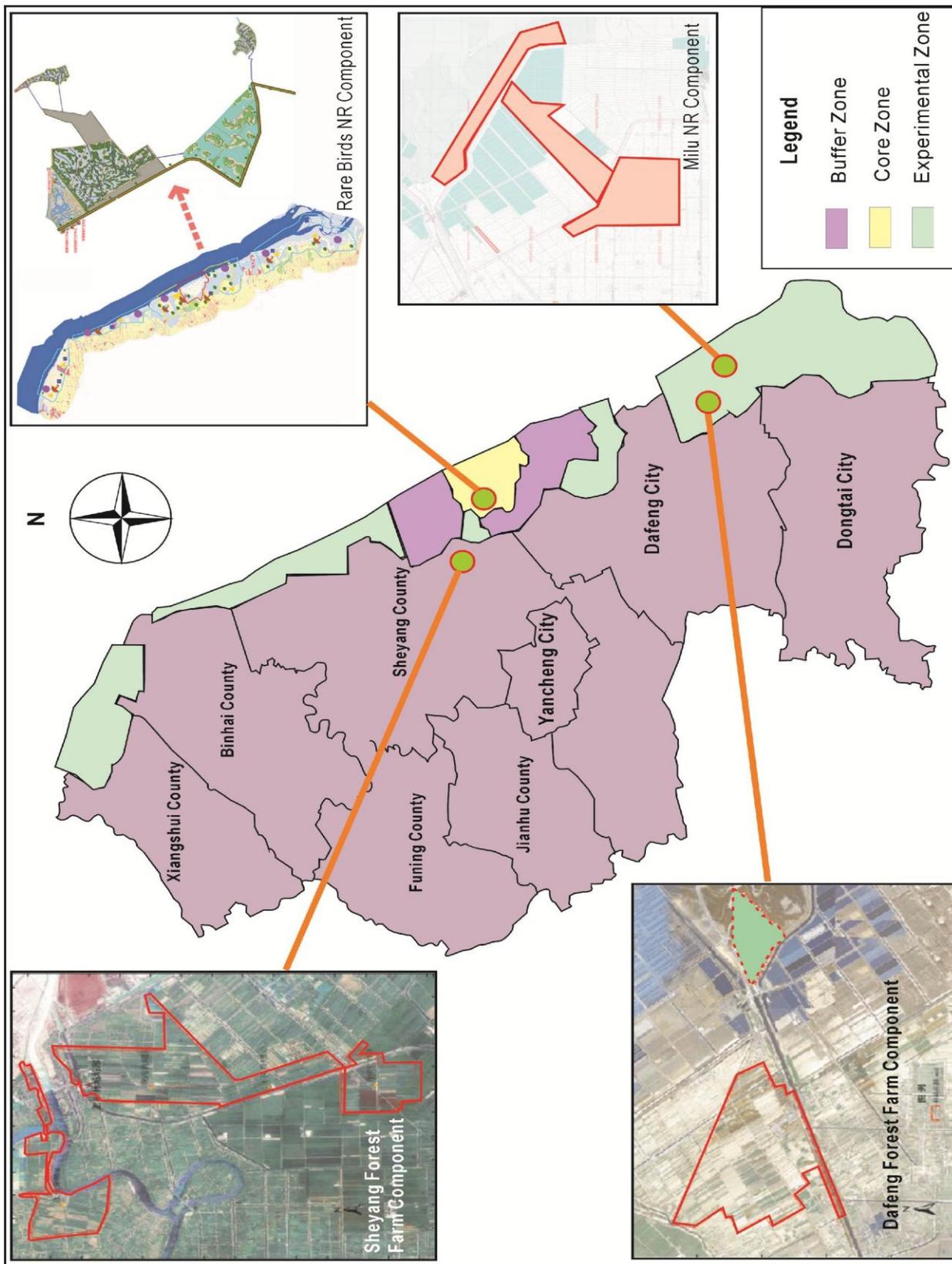
104. The monitoring and reporting plan is provided as follows:

Table 10-1: Monitoring and Reporting Plan

	Internal M&E		External M&E		Post-Evaluation Report	
	Date	Report	Date	Report	Date	Report
YRBNNR	Jan 2012–Dec 2015	Quarterly	Jan 2012–Dec 2015	Semiannual	Jun 2016	One report
SFF	Jan 2012–Dec 2015	Quarterly	Jan 2012–Dec 2015	Semiannual	Jun 2016	One report

M&E = monitoring and evaluation, SFF = Sheyang forest farm, YRBNNR = Yancheng rare birds national nature reserve.

Appendix 1: Layout Maps of Project Outputs



Appendix 2: Resettlement Impacts at SFF

	Affected Area	Affected Land (mu)					APs	
		Cultivated Land	Forest	Inter-Cropping Land	Other	Total	Worker	Contractor
Forest bird habitat rehabilitation	Dongsheng section	1,456	230	82	487	2,255	66	0
Seedling nurseries and agroforestry demonstration	Minnan section	667	810	0	375	1,852	11	23
	Fangqiang section	0	544	0	0	544	0	0
	Dongfeng section	166	130	107	0	403	9	5
	Shengli section	1,024	119	100	0	1,243	26	0
Infrastructure improvement and emergency response system (entire forest farm)		0	0	0	1,792	1,792	0	0
Total		3,313	1,833	289	2,654	8,089	112	28

AP = affected person, SFF = Sheyang forest farm.

六、乙方交纳抚育保证金，承包期结束前结算退还。

七、承包户不得将树桩、杂草、秸秆等杂物抛入田边沟中，违者视情节予以伍佰元以下的罚款。

八、乙方在承包期间，必须严格执行国家有关法令、法规，特别是计划生育有关规定，保证无计划外生育，自觉维护场规场纪。在种植期间使用的农临工，发生任何安全事故，均与甲方无关。

九、乙方在承包期间如确需搭建临时工棚的，需经甲方同意，并报请场土管所同意后，方可实施，否则将依法予以拆除。

十、对于大宗农副产品，如果场部统一销售，乙方必须服从。

十一、乙方承包的土地，必须服从林场的整体规划安排（如农田水利建设、造林等），涉及土地面积农作物受损的甲方按实予以赔偿。

本合同一式四份，甲、乙双方、见证方各执一份，从签字之日起生效。

见证方



甲方：

乙方：[Handwritten signature]

年 月 日

地 块 位 置	类 型	面 积	单 价	金 额
公路北腰路北向西 19 ^号	林	30.3	552.05	16727.115
合 计				16727.115

(A Translation of Land Use Contract of SFF)

Land use contract

Party A: Sheyang Forest Farm

Party B: Cai Wenhua

Address:

Tel:

In order to make full use of land resources to develop agricultural and forestry production for economic benefit raising, the farm office decide to sign pieces of new contracts to external groups except the staffs' contracted land. With consensus, both sides reach the agreement as follows:

The external contract term: Party A provides 30.3 mu land which is in Fangqiang management area to Party B to plant as a contract. The term is one year, from 15 November 2009 to 15 November 2010.

Party B should commute into a lump sum when signing the land use contract. The total account is CNY 16,727.115. Annual and biennial metasequoia requires CNY 40/mu intermediate bond. Additional CNY 20/mu is required for other forestry land. The total is CNY 606.

Party B should arrange the land distribution rationally in contracted term. It can't affect the next year's contract and autumn sowing.

Party A requests that Party B keeps 50 cm at the edge of ditch during the procedure of production. If the contractor break the rules, they will pay CNY 200 penalty to Party A; In serious cases, the contracted fields and fees will be confiscated by Party A. Party B must plant strictly in accordance with the rules of forest farm (the root distance for annual and biennial trees is 0.6 m, the root distance for three or four-year-old trees is 1 m).

Crops of long stalk and vine are forbidden in metasequoia forest. Party B will charge for seedling tending management for free. If Party B refuses, Party A could adopt coercive method. The cost will be borne by Party B. Party B can't prune arbitrarily. With Party A's agreement, Party B could prune. If there are some distorted conditions without Party A's agreement, 10/plant will be paid as penalty. In serious cases, they will investigate and deal with the infringement.

The tending margins are paid by Party B and return after finishing the contract.

The contractor can't throw the branches, rank grass and straw into the ditch. Based on the infringe situation, it requires CNY 500 below penalty.

Party B must implement state laws, decrees and policies strictly in contract term, especially family planning. Avoid the birth out of the plan. The worksite accident happened on seasonal workers in plant term is not relevant to Party A.

If Party B shall build the seasonal shed, they should receive the agreement from Party A. It must be reported to Land Management Agency for approval, otherwise the shed will be removed.

For bulk agricultural product sale, Party B must accept it as the farm office sale them all together.

Party B must subject to the overall planning which designed by forest farm office in aspect of land (such as water conservancy construction in agriculture, planting).

This contract is to be completed in quadruplicate. It shall come into force upon the affixation and the signature of the authorized representative of each party. (Party A, Party B, Witness).

Witness: SFF Stamp

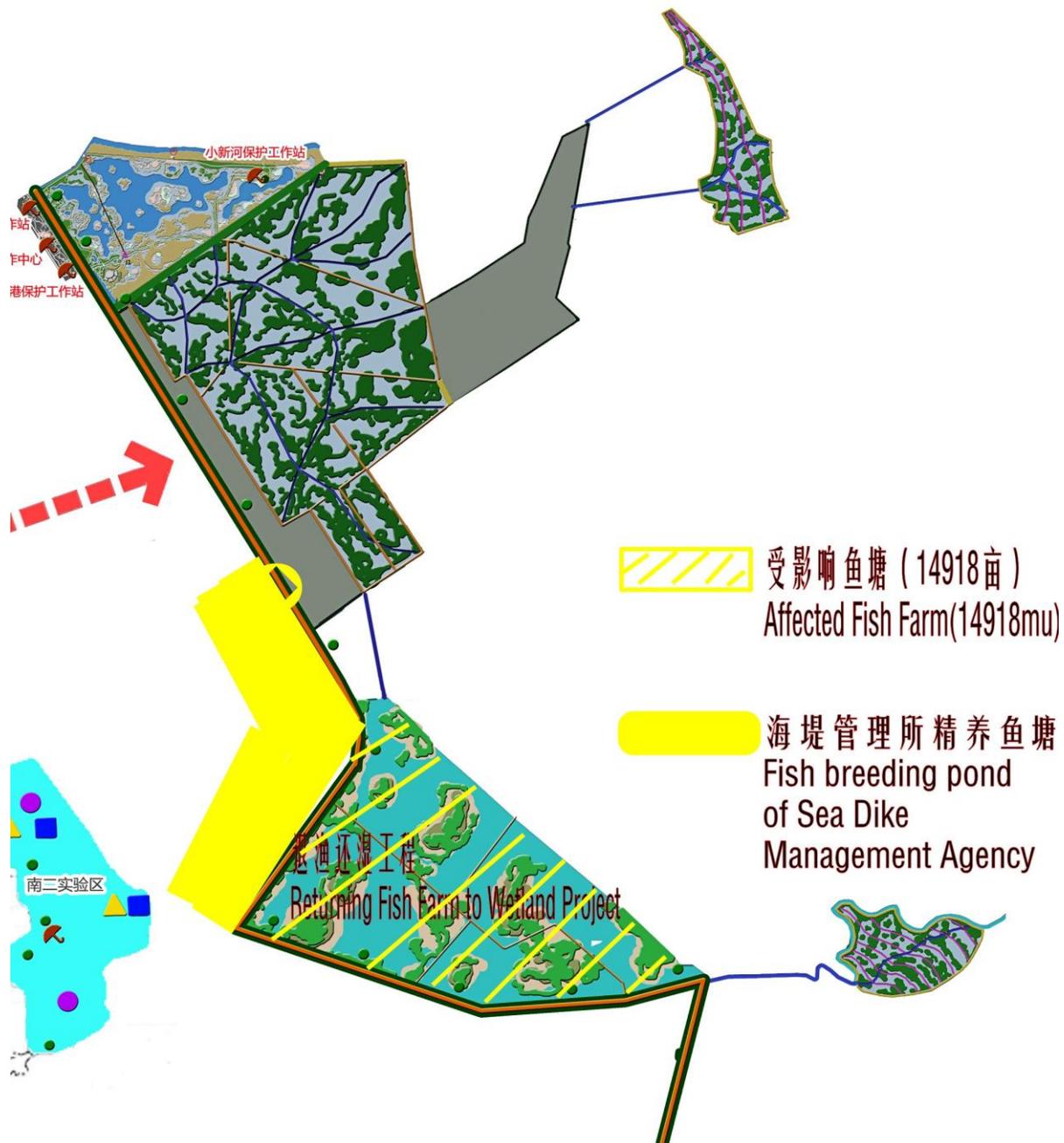
Signature Party A:

Signature Party B:

Date:

Location	Type	Area	Unit price	Total
Beiyao Road 19#	Forest	30.3Mu	552.05	16,727.115

Appendix 4: Location Map of the Contract Fishpond at YRBNNR



Appendix 5: Letter of Confirmation for Coordinating Contract Fishpond at YRBNNR

FROM : YCNNR

FAX NO. : 051582642202

2011.08.03 16:35 P1

江苏盐城国家级珍禽自然保护区管理处

函

经我处与海堤管理所协调，从 2013 年 1 月 1 日起可优先承包给徐林松 1000 亩水产养殖区从事水产养殖。



(A Translation of Confirmation Document)

Letter of Confirmation

With the coordination between our office and Sea Dike Management Agency, the 1000Mu aquatic farming area contract will be given to Xu Linsong firstly to do aquaculture neglect.

Official Stamp of the Jiangsu Yancheng Rare Bird National Nature Reserve

3 August 2011

RISK ASSESSMENT AND RISK MANAGEMENT PLAN

Risk	Assessment without Mitigation	Management Plan or Measures	Assessment with Mitigation
Economic slowdown puts greater development pressure on wetlands.	Low	Project design includes institutional strengthening on regulatory enforcement, policy and sector mainstreaming, and sustainable financing mechanisms. They will help minimize the pressure.	Low
Nature reserve master plans and forest farm five-year plans are not effectively implemented.	Low	GEF financing has a component to establish sustainable financing mechanisms and strengthen institutional capacity to develop and implement management plans.	Low
Some stakeholders may resist participating in conservation and protection.	Medium	Information dissemination, education, and consultations throughout project implementation are incorporated into the project design to ensure ownership and buy-in by key stakeholders. Ecological compensation promoted by the government and under GEF financing will provide additional incentives.	Low
Water for rehydrating wetlands and for milu to drink may be polluted in excess of applicable standards.	Medium	Water quality is expected to improve following the government's accelerated efforts to abate pollution basin-wide during the twelfth five-year plan.	Low
Excessive noise from construction may affect rare birds.	Low	A wildlife expert is included in the consulting services to closely monitor activities. Adaptive management will be adopted to adjust construction intensity and scheduling.	Low
Coastal wetlands in the third core zone may not have adequate carrying capacity to support relocated milu deer.	Medium	Relocation will be implemented in phases. Subsequent phases will take place only if and when the preceding phase is evaluated as successful.	Low
Local PMOs and/or PIUs lack capacity in coordination, supervision, procurement, contract management, disbursement, and financial management.	Low	Training in these areas will be provided by ADB officers prior to project implementation and by consultants during project implementation. The Jiangsu provincial government has a PMO supported by the World Bank and/or ADB with rich project experience, which will support local PMOs.	Low
Overall	Medium		Low

ADB = Asian Development Bank, GEF = Global Environment Facility, PIU = project implementation unit, PMO = project management office.
Source: ADB.