ENVIRONMENTAL EFFECTS METADATA SURVEY FORM

Name of person updating the form	Date submitted
Teresa Simas	June 7, 2012

Project name: Sihwa Tidal Power Plant

☐ Planned ☒ In Operation ☐Completed

Project description:

Project Developer: Korean Water Resource Corporation

Technology Developer: Korean Water Resource Corporation

Technology type: Tidal Barrage

Resource (wave, tidal): Tidal

Project scale (test site, prototype, array, commercial): Full scale; commercial

Installed capacity (MW): 254 MW (25.4 MW per turbine, 10 units)

Project Website: http://english.kwater.or.kr/

Launch Date: August 4, 2011

Additional Description: The tidal barrage makes use of a seawall constructed in 1994 for flood mitigation and agricultural purposes. Technical details: 10 Turbine / Generator units; Runner diameter 7.5 m; Turbine Output 26 MW; Generator Output 26.8 MVA; Rated speed 64.3 rpm; Rated head 5.82 m; Rated discharge 482.1 m^3/s; Rated voltage 10.2 kV; Rated current 1515 A; Annual energy production ~ 550 GWh.

Location:

Ocean/Water body: Sihwa Lake, Gyeonggi Province

Closest city: Around 4 km from the city of Siheung

Country: South Korea

Coordinates: 37.31306°, 126.6127778°

Process status: It was created by constructing a dam in 1994 to secure agricultural water for the region, to develop industrial/agricultural lands near the metropolitan area and to secure irrigation water. The construction of the Sihwa tidal barrage power plant (TBPP) was completed in 2011 and its operation started in August. Total cost was 313.5 billion won.

Licensing information (brief description):
Please provide a brief description listing the organizations involved, licenses needed and duration of consent process. One paragraph should suffice.

Key Environmental issues: After the seawall was built, severe pollution built up in the newly created Sihwa Lake reservoir, making its water useless for agriculture. In 2004, seawater was reintroduced in the hope of flushing out contamination; inflows from the tidal barrage are envisaged as a complementary permanent solution. The tidal power station is providing indirect environmental benefits as well as renewable energy generation. During commissioning of the project a diffusion of pollutants to the sea was expected. To reduce this effect a gradual increase in power generation was implemented as part of commissioning procedures.

Environmental webpage: *link to project official environmental webpage (if available)*

Baseline studies and project effects studies: Sihwa Tidal Power Plant				
General description				
Receptor	**Study description including question and/or objective** (several can be listed per receptor)	**Design and methods** (brief description)	**Results** (brief description)	**Status** (planned, underway, completed, with dates)
Physical environment				
Benthos				
Fish and fisheries				
Large vertebrates				
Birds				
Marine uses / users				
Other* (can be named)				
Reports or Papers	(Key papers on the areas addressed should be listed here; when possible the files themselves can be made available in downloadable PDF format, alternatively links to the files or project website can be provided when available)			
Research Projects	(past or on-going environmental research projects at the site)			

Monitoring and adaptive management: Sihwa Tidal Power Plant				
General description				
Receptor	**Monitoring program description including question and/or objective** (several can be listed per receptor)	**Design and methods** (brief description)	**Results** (brief description)	**Status** (planned, underway, completed, with dates)
Physical environment				
Benthos				
Fish and fisheries				
Large vertebrates				
Birds				
Marine uses/ users				
Other* (can be named)				
Reports or Papers	• Environmental Management in Korea: Insights and Observations from the 2007			
Research Projects	(past or on-going environmental research projects at the site)			