Liupanshui is an industrial city that was built in the mid 1960's. The population of this city is about 0.6 million. Due to this city’s size in proportion to its population it becomes a highly densely packed Peri-urban city. The development of this habitat recovery park came about when the city government commissioned a landscape architect to develop a solution that would address multiple problems within their site. These problems include water pollution, floor and storm inundation, habitat recovery and creating of public space for gathering as well as aesthetic enjoyment. Water Cleansing was one of the city’s main target problems because Liupanshui had once been a heavy industrial city. As a industrial city it was dominated by coal steel and cement industries. These pollutions caused the cities inhabitants to suffer from air and water pollution. A major polluter of the water was a result from deposits of the air pollution falling onto the hillsides and then washing into the river. This along with chemical fertilizer and sewage quickly polluted Liupanshui’s water. Another problem that had to be solved was the floods that occurred during the monsoon season and the severe droughts that occurred in the dry season. This had been previously addressed by creating a channel that transmitted the water upstream but this however caused severe flooding problems upstream.
The main strategy of Turenscape was to slow the flow of water from the hillside slopes by creating a water based ecological infrastructure that would retain flood season waters. By doing this the water would become the main source in regenerating a healthy ecosystem. This ecosystem would provide a low maintenance healthy ecosystem that would in-turn transform the park into an aesthetically beautiful landscape. First existing bodies of water are linked to water retention ponds and purification wetlands, each having their own capacity. Doing this decreases urban flooding as well as allowing the water to freely flow between ponds. Second the concrete river embankment of the river was removed and a natural riverbank was restored. This enhances the rivers self purification potential. Thirdly Terraced wetlands are introduced to the site in order to regulate seasonal rainwater. These terraces are inspired by the local farming techniques that catch and retain water and transform steep slopes into productive fields. Their positions, forms and desphts are also based on geographis information and a water flor analysis. Lastly creation of continuous paths of public spaces are created. These paths allow easier access to the river front. They also integrate the urban recreation and ecological spaces.
Removal of the river embankment was, in my opinion, one of the major successful design strategies. This created two ecological zones. One encouraged native vegetation while the other had vegetation sewn into its riverbed. Hence producing an ecosystem that is low maintenance and self-cleansing. Also, I found the terraced wetlands and retention ponds, that were created to regulate water inundation during the rainwater season, to be a very successful design strategy. More specifically, the inspiration behind these designs were the techniques used by local farmers. These farmers take steep slopes and perpendicularly cut into them creating a stair-shaped land. They then carve into the flat area of the land to create vacant "ponds" that then hold rainwater. They repeat this process on each flat area.

Creation of aesthetically beautiful public spaces is another very clever design strategy. This reminds Liupanshui’s residents to slow down and appreciate the beauty of the landscape that had once been forgotten as well as ensuring that the residents maintain its beauty for future generations.

Minghu Wetland Park
Habitat Recovery
Turenscape
August 2012
Liupanshui, Guizhou, China
MUSE
Flood Resilience

Renzo Piano Building Workshop
2013
Trento, Italy
http://www.archdaily.com/423101/muse-renzo-piano/

Muse is a museum dedicated to exploiting the relationship between man and the environment. The architecture of this building resembles the neighboring mountains. The dominant design factors are the steeply angled glazed roof plates. This creates a dialog of nature and technology which is mirrored into the building's voids and masses. The roofs are also used for solar power and rainwater recovery. Since this site was once an industrial area the main objective of this building is to regenerate existing landscape. Also its aim is to expose the site's relationship with the river environment by a smart and practical use of natural resources. A second goal of Muse is to urbanize the area around the site and bring the city closer to River Adige.

Since the redirecting of the river in the nineteenth century there has been unexpected flooding along the river. Also since the redirecting of the river the river's water current has increased its velocity.
First Piano introduced a system of canals within the project’s site. These canals will transport the water from the north to the south and will feed this water into two larger bodies of water that surround the building. Moving bodies of water create both an aesthetically pleasing view as well as providing helpful technological functions. Surface tanks act as reservoirs for irrigation and hold water for fire prevention and act as flood control systems. Water collected by the roof system will also be used for drinking water and will help reduce purchased potable water by fifty percent. The collected river and rainwater will also be used to irrigate the museum’s indoor greenhouse. This water will also be used for scientific studies by the scientist within the museum.
Creating canals that weave through the entire site creates a connection from one end of the site to the other end. This also creates a constant path of circulation that a pedestrian can follow. The techniques used in this design were all successful due to the fact that they all provided both eye appealing beauty as well as functional uses. For example, the gathering of rainwater that can be used within the museum’s greenhouse is a very practical aspect of this design. Also, the cut of purchased potable water is reduced by half due to the efficient uses of the collected rainwater. Another design that is successful is the pooling of the water around the building itself. This creates a “floating” feeling while looking at the building from certain angles.
Library of Birmingham

Largest library in Europe pricing at 186 million euro price tag. Located in the historical center of the city. All the buildings surrounding it were built in different time periods. Large cantilever of the library provide shelter at the entrance. The facade is made up of expanses of glazing that are met with varied mesh of circular metal filigree. These shapes are derived from the cultures industrial regional artisan tradition. Rotund voids within the interior of the library allow natural light to enter from the roof natural light as well as allow ventilation. The library of Birmingham also incorporates grey water systems and ground source heat pumps. The ground floor benefits from the mass of the soil which provides insulation. However since the building is transparent reflecting materials and sun shading within the facades block the strong rays from the sun while still allowing light into the interiors. The circular cutout through the ground in front of the building allows natural light as well as fresh air into deep parts of the building, the eight circular spaces within the building are connected with strategically placed elevators and escalators.

Mecanoo

2013

Birmingham, West Midlands, UK

http://www.archdaily.com/421970/library-of-birmingham-mecanoo/
On the lower ground floor the open amphitheater and children’s library are both located. On the ground floor is located the entrance, large open spaces and a customer service area. On the second floor you will find meeting spaces as well as business and learning areas. On the third floor there are more seating areas available for small groups that would like to gather. Also on the third floor is located another customer service source. On the fourth through sixth floors you will find galleries and the storage area for the libraries books. On the seventh floor is located more spaces for small groups to gather. The seventh floor also allows access to the outdoor terrace that overlooks outdoor city space.
Library of Birmingham

Library

Mecanoo

2013

Birmingham, West Midlands, UK

http://www.archdaily.com/421970/library-of-birmingham-mecanoo/
This library successfully fulfills our societies technological need because it allows more seating areas for people to gather. Whether they gather in groups of three or larger groups of twenty this library has room/spaces that will accommodate either group. Also the large void in the center of the library allows a great deal of natural light. This void also helps bring a more commercial feel to the library as opposed to a rigid structured atmosphere that traditional libraries present.