Passive floodplain agricultural system, Gohatson, Ethiopia

Project description by author

Humanity cannot defeat the environment. We can but only live within the dynamics of a far larger system. The countries along Nile River have faced two problems. Firstly, there is the issue of attributing water rights to the countries along the catchment area. The second problem is how each country uses the river. These are the problems that should be solved for the poor countries of Africa.

We focused on the periodic flood of the Nile River. The ancient Egyptians considered it as a gift or blessing from nature. Fertile soil accumulates along the floodplain of the Nile River and people farmed upon it. This is ideal process of systems circulation that produces in what nature gives and returns to nature again.

Our building presupposes being “sunk”. Therefore, it does not need components that ordinary buildings need, but only needs the structure which forms a ramp for agriculture. The structure shapes in a form of mesh so that it is less impacted by river currents. The ramp circles around the structure leading users to the top. These are the elements that compose our building. The building is planned to be submerged in the river for three months in rainy season. It creates a flow that leads silt to be deposited. Soil accumulates on each floor of building for 3 months.

When the rainy season passes and the dry season begins, the river’s level begins to drop. At this point, farming starts by waiting for crops to grow. This is whole process of the continuous flood that comes every year. This is all that we suggest is the concept of fertile soil abundant in the African continent, the periodic change of river level by annual flood, and agricultural method used by ancient Egyptians who had made the best use of the fertile soil delivered by the flood of the Nile.

Innovation and transferability - Progress

The most important purpose of this project is to help countries who have problems with their agricultural production. But methods being used in this process need to be changed. The means, which result in waste of fossil fuels on heating and labor for managing farms, are not considered as proper ways for countries with endemic poverty and famine. Minimalizing the additional energy and resources used for farming is the concept that we suggest. We studied ways of using natural forces. Our project takes advantage of fertile soil abundant in the African continent, the periodic change of river level by annual flood, and agricultural method used by ancient Egyptians who had made the best use of the fertile soil delivered by the flood of the Nile.

Ethical standards and social equity – People

Declining production rates and indigent environment result in continuous problems. These fundamental problems cannot be solved by themselves and pass down from generation to generation. Our perspective is on how to solve the continuous problems in food production. The purpose of this is to solve the overall problems in agriculture in the African continent. People in Africa lack awareness of using resources effectively. Constructing infrastructure is the most important issue. Through the construction of infrastructure, architecture becomes source of cultural change.

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Environmental quality and resource efficiency – Planet

Our project is a structure that enables better agricultural results. When the Nile is flooded, the structure becomes completely submerged. The flooded river then delivers onto the structure fertile soil in which crops can readily be grown. The only manpower required is sowing seeds on the soils and waiting for crops to grow. This is whole process of the agricultural method that we suggest. No chemical fertilizer or fossil fuel is needed.

Economic performance and compatibility – Prosperity

Supplying food and resources to the countries in Africa is not a solution. What they need is construction of infrastructure that enables them to stand on their own feet. With the current method of agriculture, farm profitability is undermined by increasing costs for fertilizers. The fundamental problem will be solved by suggesting ways that enable continuous support but are sensitive to nature.

Contextual and aesthetic impact – Proficiency

The developing countries along the Nile are interested only in their own situation. There are more than ten countries within the Nile’s catchment. Building dams without considering other countries is untenable. There needs to be a new method that takes advantage of the river. Complementary conversation about ways of using the Nile between countries at upper and lower region of the river is required. This conversation would lead us to adapt to nature.