

The water enters the system on the far left of the picture below left and works its way down through a series of cells (see below) to the final area where a fountain is again adding more oxygen to the system. The fountain will achieve at least a 30m column of water.



Original Design Layout of Bioremediation Facility

There are now 3 compartments to the bioremediation system, although in the original concept, there were 4. The reduction in size was due to the high cost of rerouting some of the larger utilities buried within the Wadi bed. To overcome this "loss" however the cells from the compartment that was deleted have been redistributed in the last compartment, so there has been no loss of function of the facility.

The cells are configured in a herring-bone arrangement. In total the amount of individual cells in the bioremediation system is 134.

The cells are designed to have the same amount of water flowing at the same time and to keep the water in the cells as long as possible, in order for the various parts of the cell to act on the water to reduce the amount of pollution.

To help reduce the coliform bacteria and other pollutants in the water, oxygen is introduced into each of the inlet channels (that run down the spine of each of the compartments) by a series of perforated pipes (similar to the ones used in the bases of fish tanks, only much larger).

Within the cells natural organisms create a food chain which acts on the bacterial organisms and by doing so cleans up the water. Fish will be the top predator and these will be introduced to the bioremediation facility where they will be harvested on a regular basis. It is anticipated that in excess of 1 tonnes of fish per day will be taken from the facility.

The cleaning up of the Wadi is of course one of the critical parts of the project however just as important are the other measures designed to bring the Wadi back to the people of Riyadh.

To achieve this, a series of landscaping features have been introduced. These include the following

- Rock features to introduce an interesting natural feel to the Wadi.
- Introducing Palm planting at some of the Gateways to Riyadh.
- Landscaping cells of indigenous species of flora that occur naturally in the Wadi and are proven to be hardy to the harsh environment. Through natural regeneration these will naturally spread throughout the Wadi.
- Interpretative trails that wind their way throughout the Wadi allowing the public to access the Wadi easily and to direct them to interesting features of the Wadi.
- The interpretative trails and Wadi roads will be lit to allow safe access to the Wadi during the cooler night period.
- Lighting to provide an interesting ambience to the Wadi by lighting up certain features to bring an interesting look.
- Using existing features to create interesting landscapes.
- Creating lakes and parks for recreational purposes.

Palm Trees at King Fahd Interchange

