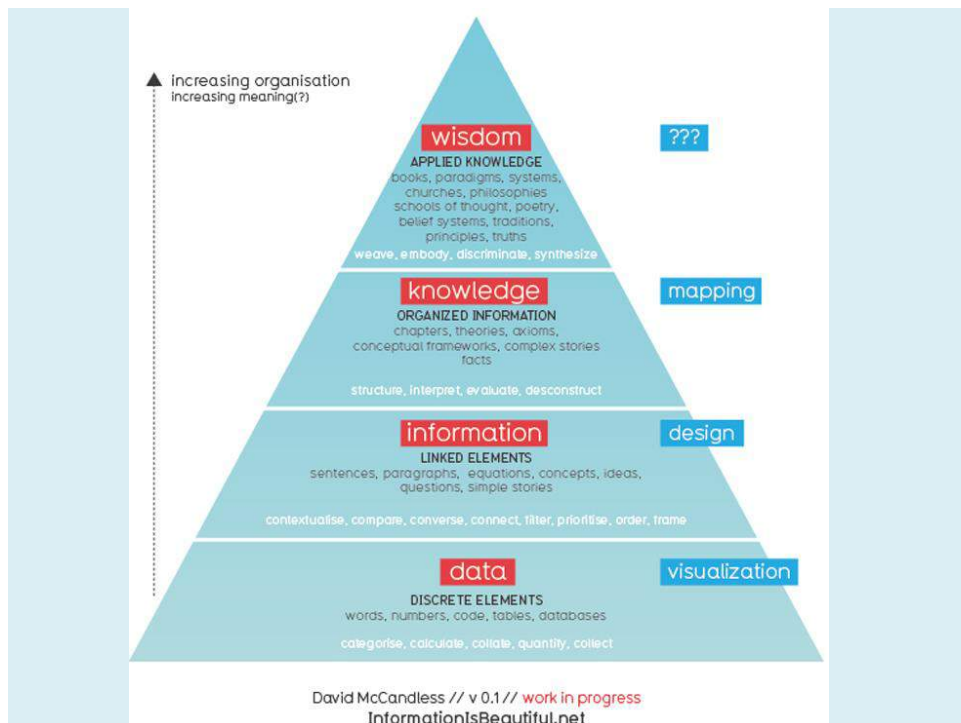




Value Engineering Change Proposal Of Irrigation and Drainage Networks in Ramhormoz - Iran

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\$ 100 m Saving of modifying Design flood in a Dredging Project of Karun River

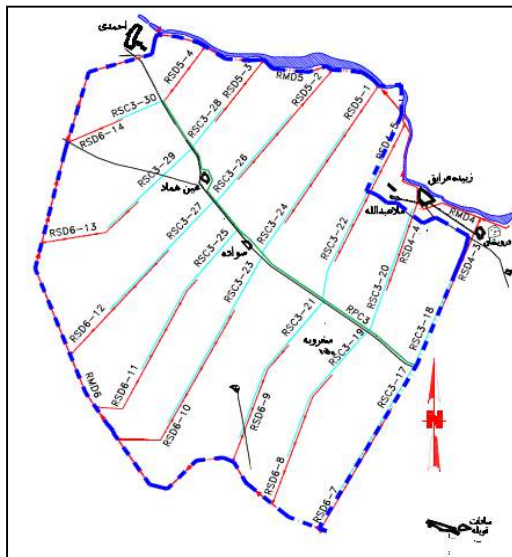


Introduction





5



General Plan

14 units

Gross area 5588 hectares

Net area about 5000 hectares

6

Main climatic characteristics

- Annual average rainfall = 305 mm
- Absolute maximum temp = 52.8 celcius
- Absolute minimum temp = - 2.3 celcius
- Average annual evapotranspiration = 1775 mm

7





Value Engineering Team Members



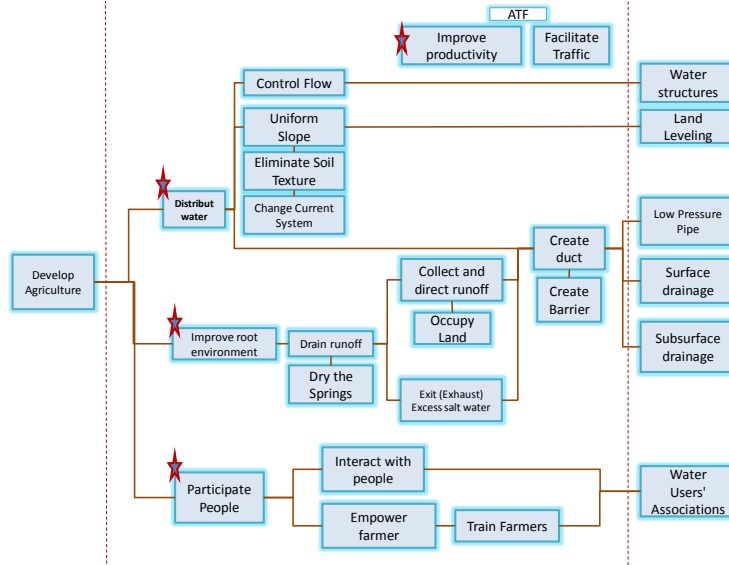


Site Visit





FAST Diagram



Brain Storming Session





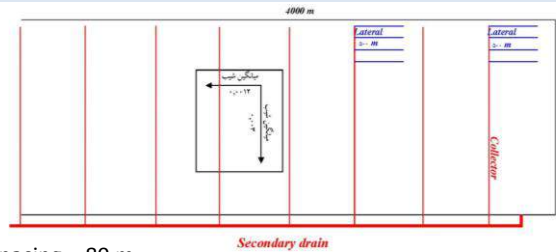
List of VE Proposals

Row	Title of Proposal	Value Index
1	Designing Based on the possible use of plastic gated pipes (hydro flume)	1.22
2	Reduction of pipes diameter	1.23
3	Using Pressurized Irrigation	1.1
4	Using GRP Pipes instead of PE	1.1
5	Reduction of the specific discharge (flow per unit area)	1.06
6	Optimizing land leveling operations	1.3
7	Changing main conveyance open channels to pipeline	1.98
8	Use of sand around polyethylene pipe of sizes greater than 350 mm	1.1
10	Measurement equipment for water delivery	1.05
12	Pilot Farm	1.38
13	Increasing lateral spacings	1.35
14	Change in lateral alignment according to the natural slope	1.54



Change in lateral alignment according to the natural slope

Layout of subsurface drains (Base Case)



Lateral spacing = 80 m

Lateral length = 500 m

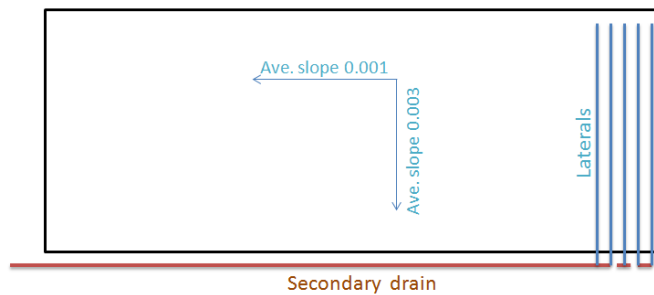
Pipe collector spacing = 80 m

Number of collectors = 8

Lateral diameter = 100 and 125 mm

Collector diameter = 160 and 300 mm

Layout of subsurface drains (Proposed Case)

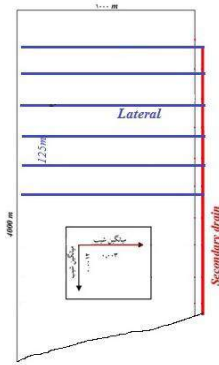


Lateral spacing = 100 m

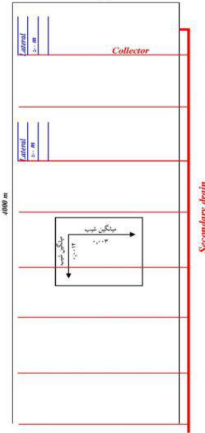
Lateral length = 1000 m

Pipe collector : no needed

Lateral diameter = 100 and 125 mm



Proposed layout



Contracted layout

Benefits of proposed modification:

- Use of the natural slope
- Constant drain depth along the lateral
- Lower sedimentation because of steeper slope
- No need for any type of collectors
- Lesser land loss



Ave. slope= 0.003





Benefits of alteration of the direction of lateral drains were:

- **Cost Saving of 23 billion Rials (about 0.9 million USD)**
- **No need for any type of collector drains;**
- **Constant depth of the laterals;**
- **Lower sedimentation risk in the drains because of higher water velocity; and**
- **Easier maintenance.**



Conclusion

This was an example to show that VE can make it possible to reduce the cost and/or increase the productivity of a project.

In this case the saving due to all proposals was estimated to be 80 billion Rials (3.2 million USD).