

## 2-5 "Fossil valley", a suitable site for a subsurface dam

(1) What is a "fossil valley"?

A "fossil valley" is a geomorphological and geological structure that meets the requirements described above. It is formed by erosion by an old river and subsequently covered by new sediment. It is also known as a "buried valley".

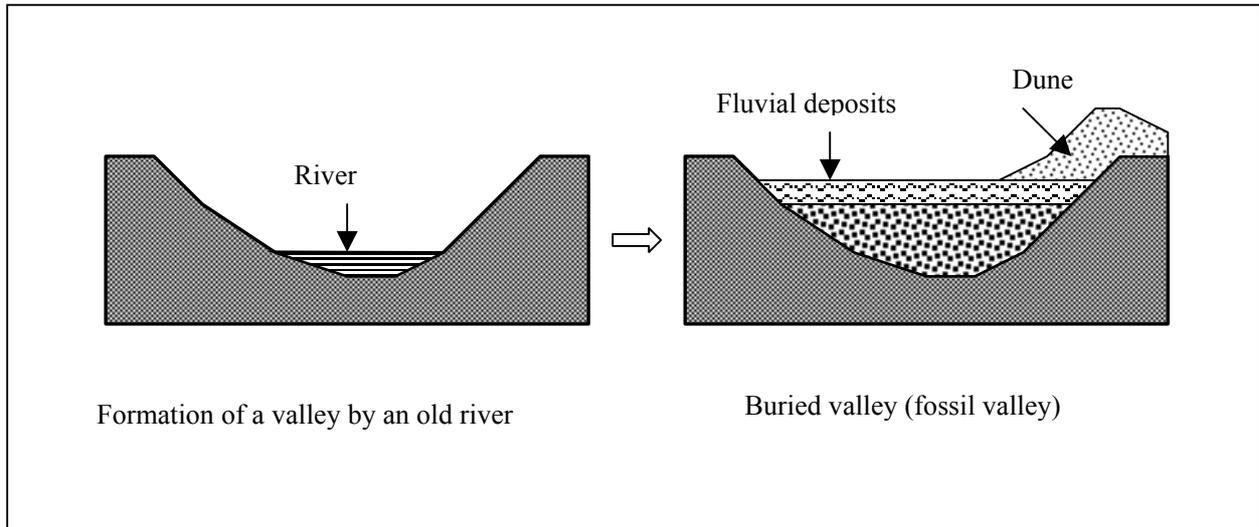


Fig. 2.3: Schematic diagram of a "fossil valley"

(2) Characteristics of a "fossil valley"

A fossil valley is generally regarded as having the following characteristics suitable for a subsurface dam.

- 1) As a "fossil valley" is an old buried river (valley), it is likely to preserve the drainage system of the old river as shallow groundwater flow in stable regions that have not experienced crustal movement in recent geologic ages. In addition, it probably does not have irregular "water bypaths".
- 2) In the case of a "fossil valley" formed by the erosion of basement rock, its sides and bed are impermeable, and there is less risk of water leakage from the reservoir layer.
- 3) The "fossil valley sediment" that buries the "fossil valley" is composed of deposits from recent geologic ages such as fluvial deposits or sand originating from dunes. This porous, unconsolidated sediment is favorable for the reservoir layer of a subsurface dam.