

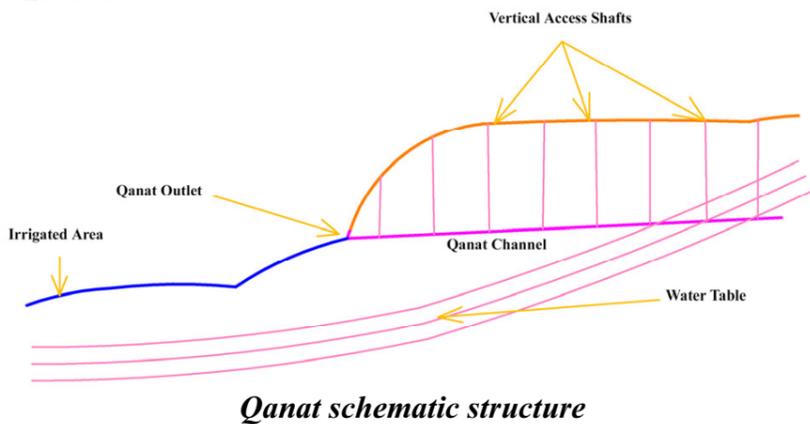
Water safety plan & protection for Sustainable (renewable) water resources

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Objects :

Water scarcity or water shortage is the global concern and it affects the entire world particular in arid and semi-arid climates with low raining rate such Africa and Asia.

For hundred years **underground water resources** “wells, springs and fountain, Qantas* or karez “are the main water supplies in arid and semi-arid regions because of an absence of larger rivers with year-round flows sufficient to support drinking water and irrigation.



A **qanat** (from Arabic: قنّاة) or **karez** (from Persian: کاريز) is a water management system used to provide a reliable supply of water to human settlements or for irrigation in hot, arid and semi-arid climates.



Qanat or Kariz channel (above photo from gonbadnews)



Water exposure to fertilizer Pesticides , herbicide



Animal waste husbandry contaminated water



Chemical Clearing reagent



vehicle fuel , antifreeze

Without any energy consumption (for water transferring from aquifers to surface level) The water is freshest, cleanest, and coolest in the upper reaches and more prosperous people live at the outlet or immediately upstream of the outlet.

Methodology :

Field potential risk assessments indicate high biological, chemical and physical pollution risks for these invaluable and critical resources.

Washing household utensils, clothes, vehicles, farm irrigation, contaminated vital sources with hazard chemical substances such as heavy metals, **lead, cadmium, mercury** organic substances **fertilizer, herbicides, Pesticides, non biodegradable reagents** in washing and cleaning powdered, industrial Solid waste discharge such various batteries (vehicles, electronic devices)

Risk factors

Biological	Chemical	Physical
Bacteria	Vehicle fuel	Solid wasted
Viruses	Pesticide	Metal objects
Fungi	Herbicides	Non Metal objects
Parasite	Fertilizer	Urban garbage
Algae	Cleaning reagents	Household waste
	Heavy metal	Nonbiodegradable Waste
	pharmaceutical	

Discussion:

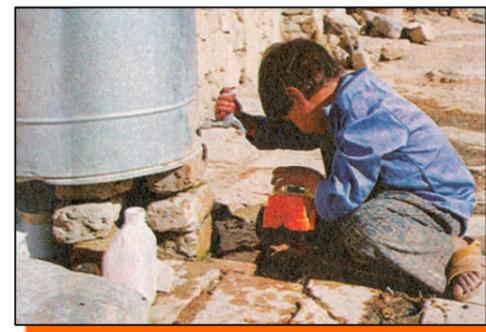
The great concerns for underground water resources are the **first wasting these invaluable fresh water** resources by mismanagement ways in the critical arid and semi arid zones, the **second environment pollutions consequences great risk for public health**, the **third as the most danger event accumulation non biodegradable hazard substances in the ecosystem and the food chains finally biodiversity degradation.**

Results :

Lacking of modern analytic equipments, skilled analyst for quality and quantity determining water pollution in developing countries makes situation worse which bring for the next generation poor productivity, illness and poverty in societies without water safety plan and protection strategy.



Every days tons of urban non biodegradable solid waste into dispose water channels



Water scarcity and shortage will be the great challenge for the world and next generations

Conclusion:

Underground fresh water conservation must be first priority in water management strategy.

Integrated Water safety must be well planted and proposed for underground water resources **lunch new legislations, updating regulations, organize permanent public educations, encourage and develop NGOs, women, and young involvement in water protection movement.** Water sanitation without integrated protection not only never brings sufficient health guarantee but also will be very expensive and even useless.