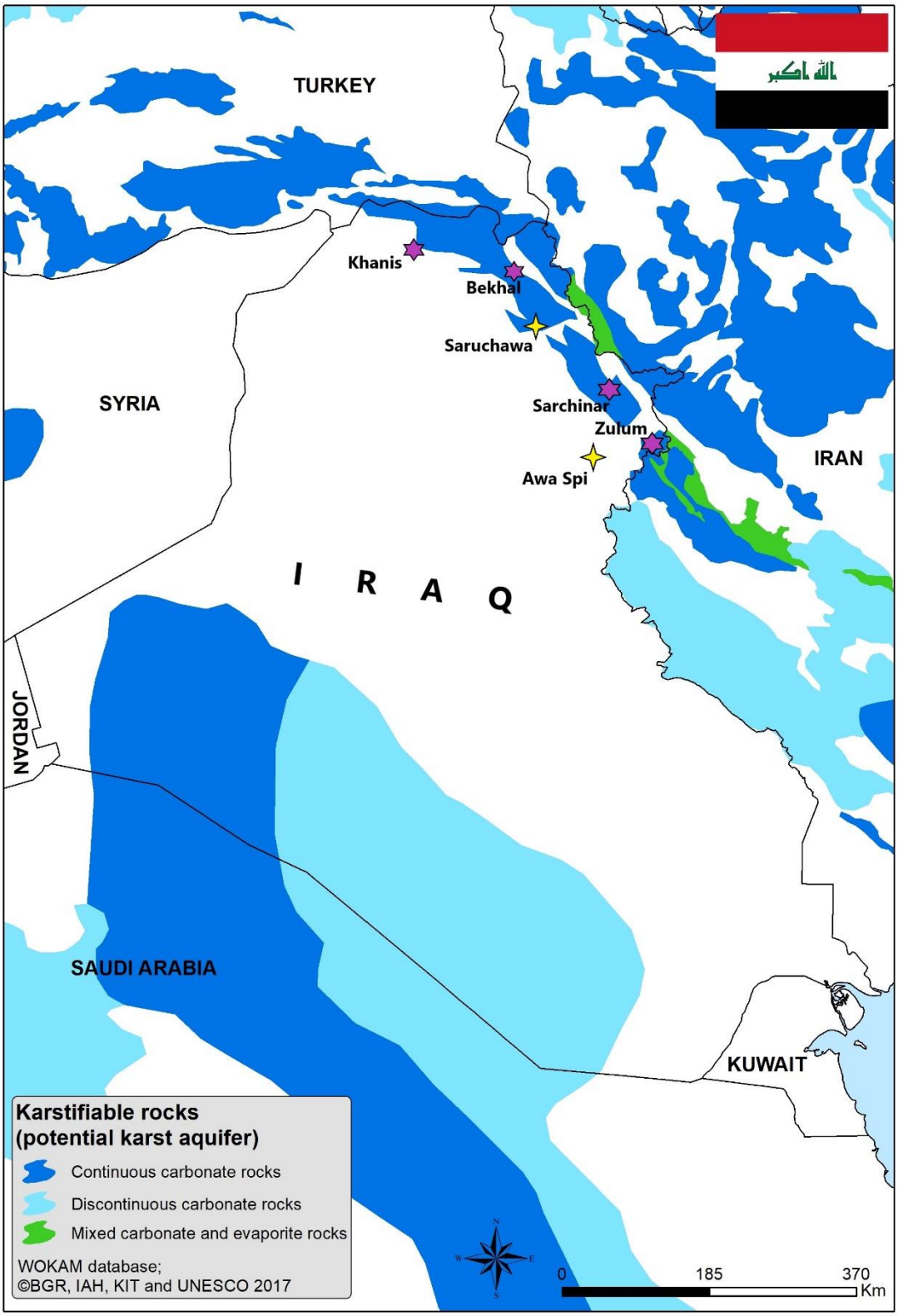
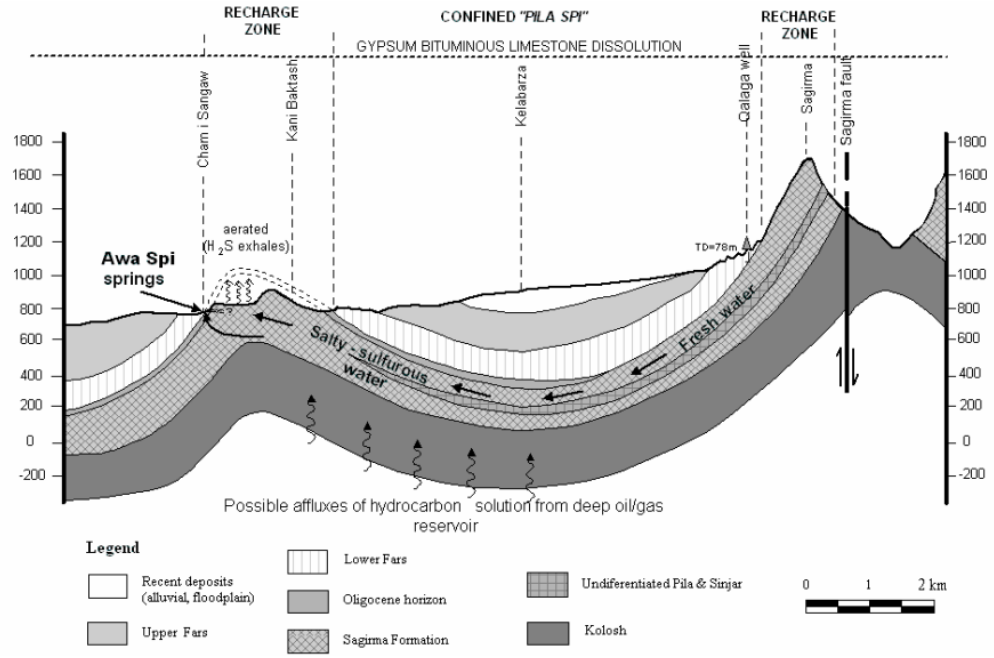

TURKEY
Khanis
Bekhal
Saruchawa
SYRIA
Sarchinar
Zulum
IRAN
Awa Spi
I R A Q
JORDAN
SAUDI ARABIA
KUWAIT
Karstifiable rocks
(potential karst aquifer)
Continuous carbonate rocks
Discontinuous carbonate rocks
Mixed carbonate and evaporite rocks
WOKAM database;
©BGR, IAH, KIT and UNESCO 2017
0
185
370
Km

Country (NIKAS)	NIKAS springs	Coordinates / Nearby City	Spring discharge (Q in l/s,min/av/max) / tapped or not	Criteria* order / Main justification */ H-historic, A-aesthetic, S-scientific, E-Economic, Ec-ecologic	Data collected by
Iraq 	1. **Awa Spi**	N 35° 8'37.64" E 45°17'21.99" Z = 640 m asl Darzila, Sangaw area, Sulaimani Governorate, Kurdistan Region	0/200/11000 Not tapped.	***S, A*** *Awa Spi in Kurdish means white water, name given due to its milky to light blue view (sulphuric water). The Awa Spi is one of several springs in Sangaw area where Pila Spi carbonate and Fars evaporitic rocks jointly create karstic reservoir. Genesis of karstic ground waters is complex; they are originated as meteoric in outcrops of Pila Spi carbonates but flowing further through Fars evaporites they dilute gypsum component and become bitter in taste and milky to bluish in color. Additionally, H_2S gas enriching the water by circulating ascendingly along deep faults. Water due to its quality are even not used by animals. Apart from contact of gypsum occurrences (bottom layers of the Lower Fars Fm.) with Pila Spi limestone there is ossible inflows of hydrocarbon-associated solutions from deep oil-rich reservoirs (or bitumen occurrences within the limestone body). In fact, the small anticline's area is not that far from one of the richest oilfields in Iraq, i.e. the Kirkuk structure.*	Adrian Iurkiewicz, Zoran Stevanović
	2.**Saruchawa**	N 36°16'30.60" E 44°45'18.68" Z = 570 m asl Ranya, Dokan reservoir, Sulaimani Governorate, Kurdistan Region	1750 / 2500 / 5500 Spring water tapped in small amount (less than 50 l/s) for local water supply and used for downstream irrigation	***E, A, H, S*** *Sprinwater is issuing from limestonesm well bedded or in banks, of Kometan Fm. (Upper Cretaceous). The discharge zone includes several strong ascending springs emerging in a diffuse manner and several other springs discharging with a concentrated flow. In the past the upper group of springs is tapped into a concrete structure, and three pumps supply the village of Saruchawa with water. Recently large concrete walls were built in wider area around the spring and created a reservoir. Parsons Co. experts (1957) were the first to describe this spring.*	Zoran Stevanović, Adrian Iurkiewicz

NIKAS – Awa Spi



Hydrogeological conceptual model of Awa Spi spring genesis (after Iurkiewicz A.)

Ascending Awa Spi spring and its milky to light blue water (photo A. Iurkiewicz)

Deep crevasse / pothole expanded along long fault near Awa Spi (photo A. Iurkiewicz)

Awa Spi discharge point (photo Z. Stevanović)

NIKAS – Saruchawa

Saruchawa spring and pumping station during drought season of the year 2000 (photo Z.Stevanović)

Saruchawa springflow, draining Mackok Mt. (photo A. Iurkiewicz)