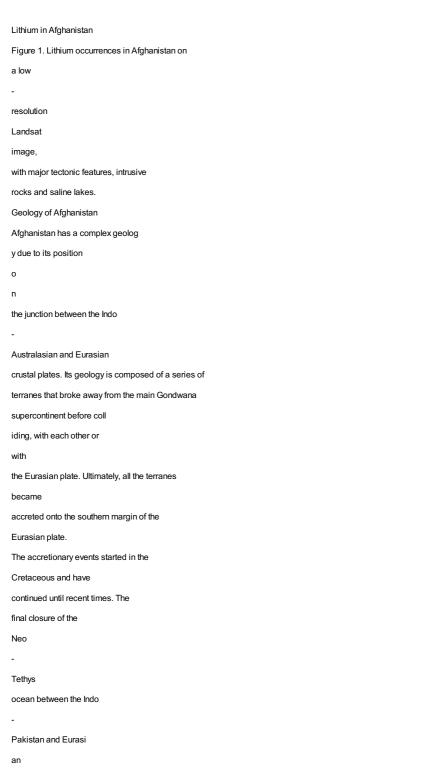
The Afghan Papers - Part 17

Wed, 20 Jan 2016 16:00:00, newstips66, [category: afghanistan, post_tag: afghanistan-waste-exhibit-a-kajaki-dam, category: elon-musk, category: energy-dept-slush-fund, category: lithium-batteries, post_tag: lithium-ion, post_tag: more-than-300m-spent-and-still-not-done-a-senate-subcommittee-is-looking-at-waste-by-a-pentagon-task-force-it-would-do-well-to-reviewthe-reasons-why-a-major-hydroelectric-power-plant-sits-unfinishe, post_tag: tesla-hacked, post_tag: uncategorized, category: worldnews]

http://mom.gov.af/Content/files/MoMP_LITHIUM_Midas_Jan_2014.pdf



plates caused the Himalayan

orogeny. In the Hindu Kush

region of NE Afghanistan

downward buckling of the

intervening crust and later

uplift of these metamorphosed

remnants produced high

-

grade metamorphic rocks

, anatexis

and

- S
- -

type

granites. Li

-

bearing pegmatites are in the

main,

restricted to Nuristan in NE Afghanistan

adjacent to

the Laghman granite complex (Figures 1

and 7).

Introduction to Lithium

Lithium, despite being called a 'rare metal', is not that

rare

in the Earth's crust and its crustal average is about

35 ppm.

Until recently lithium has been used only in

small niche

markets in the glass and ceramics industry,

in high

temperature greases and in the chemical

industry.

Lithium

h

1

as now become an

important element in the

emerging, digital and

low -

carbon

economy and lithium

batteries will probably power the

next generation of

electric cars, causing demand for

this 'rare metal' to grow

rapidly over the next 10 years.

А

t the present time

(2013

)

suppli

es are broadly in

balance with demand

But d

emand

is predicted by

many forecasters to exceed supply in 2020.

The two main sources of lithium are hard rock sources

in

pegmatites and in solution within continental brines,

both of

which are present in Afghanistan.

Figure 2. Location of the lacustrine halite occurrences, lakes, main rive rs and major faults on a shaded relief background from the USGS GIS (Peters et al., 2007). The bulk of the world's supply of lithium comes from salt or playa lakes, also called 'salars' after their Span ish name. Afghanistan has similarities with the South American deposits in the so called 'Lithium triangle' of Argentina, Bolivia and Chile with its elevated enclosed basins , high evaporation rates and, in some cases young volcanic rocks. Lithium in Afgh an Lake Sediments Afghanistan has a number of

similar

,

_

lakes (

Figure

2).

Reconnaissance sampling

(Figure 3) by the Dep

artment of

Defense (DoD, 2011)

. . . .

indicated high Li levels i

n lake

sediment (Table 1). The

lakes have not been syst

ematically

sampled for lithium

or other

potentially ec

onomic elements,

such as K, B,

Rb

, U

or Cs

,

so it is

not

possible

at present

to

give

any

estimates of resources. The readily available

figures are given by Abdullah et

al

.

(

1980).

Figure 3. The Afghanistan Geological Survey works in

partnership with international geo

-

scientific organizations

to produce a compelling assessment of Afghan resources.

Examination

of known salt lakes (

Figures 4

- -
- 6)
- , on
- detailed

Landsat ETM+ images on the USGS GIS (Davis, 2007)

shows that

the water shows a blue reflec

tance and the area

of this reflectance has been taken as the present surface

area of the lake (Figure 4). White areas around the lakes

are pr

obably salt flats, but they could be gypsum, which

normally shows a light blue

color

on the 7

- _
- 4

-

2 band image.

Table 1. Analyse

s of Afghan lake sediments from

reconnaissance sampling (DoD, 2011).

Lake

в

ppm

- Na
- %
- Li
- ppm
- Sr
- ppm
- Mg
- %

Chankansar

(Nimroz)

1.54

49

560

1.75

Dasht

- _
- е
- _
- Nawar
- 110
- 10.5
- 99
- 894
- 8.7

Gowde

- Zareh East
- 110
- 25.1
- 36
- 358

Namakas

1.7

- lamanao
- -
- e
- -
- Herat

48

- 30.3
- 41
- 461
- 0.8

Crustal Abundance

- 9
- 2.27
- 18
- 384
- 2.8

The DoD team drilled to 10 metres at multiple location in

Namaskar

- -
- е
- -

Herat (DoD, 2011). The team believes

samples were collected in the Halite zone, a key indicator

of correct sample location, and found signs of

hydrothermal activity at the site