

Appendix 2\_9C Streamflow statistics for site S16 estimated using a drainage-area-ratio method and historical streamflows (Olson. S.A., and Mack,T.J., 2011, Technique for estimation of streamflow statistics in mineral areas of interest in Afghanistan: U.S. Geological Survey Open-File Report 2011-1176)  
[km<sup>2</sup>, square kilometer; mm, millimeter; m, meter; m<sup>3</sup>/s, cubic meter per second; The streamgage, listed with Afghan identification number, is the historical site used for the ungaged site estimate.]

**Basin Characteristics:**

Drainage area:	2390.31 km <sup>2</sup>	Basin percent above 3000 m:	7.96
Basin slope percent:	21.63	Mean October precipitation:	10.6 mm
Centroid elevation:	2307 m	Mean November precipitation:	17.7 mm
Basin percent irrigated:	3.84	Mean December precipitation:	35.9 mm
		Mean January precipitation:	44.5 mm

Streamgage: Lal River at Shinya (343000065400000)		8-11.L00-1A		
Drainage area, km <sup>2</sup> : 1680		<b>Results</b>		
Streamgage data:		<b>Ungaged site estimate:</b>	area exponent	
90% flow duration:	0.08 m <sup>3</sup> /s	0.12 m <sup>3</sup> /s	1.25	
80% flow duration:	0.31 m <sup>3</sup> /s	0.47 m <sup>3</sup> /s	1.18	
Mean annual discharge:	5.13 m <sup>3</sup> /s	7.39 m <sup>3</sup> /s	1.04	
October mean monthly discharge:	0.95 m <sup>3</sup> /s	1.40 m <sup>3</sup> /s	1.10	
November mean monthly discharge:	1.01 m <sup>3</sup> /s	1.48 m <sup>3</sup> /s	1.09	
December mean monthly discharge:	1.07 m <sup>3</sup> /s	1.56 m <sup>3</sup> /s	1.08	
January mean monthly discharge:	1.23 m <sup>3</sup> /s	1.79 m <sup>3</sup> /s	1.06	
February mean monthly discharge:	1.01 m <sup>3</sup> /s	1.44 m <sup>3</sup> /s	1.00	
March mean monthly discharge:	2.86 m <sup>3</sup> /s	3.95 m <sup>3</sup> /s	0.92	
April mean monthly discharge:	17.2 m <sup>3</sup> /s	23.61 m <sup>3</sup> /s	0.90	
May mean monthly discharge:	21.6 m <sup>3</sup> /s	31.26 m <sup>3</sup> /s	1.05	
June mean monthly discharge:	5.03 m <sup>3</sup> /s	7.62 m <sup>3</sup> /s	1.18	
July mean monthly discharge:	0.88 m <sup>3</sup> /s	1.29 m <sup>3</sup> /s	1.08	
August mean monthly discharge:	1.18 m <sup>3</sup> /s	1.71 m <sup>3</sup> /s	1.06	
September mean monthly discharge:	0.95 m <sup>3</sup> /s	1.40 m <sup>3</sup> /s	1.09	
October minimum monthly discharge:	0.95 m <sup>3</sup> /s	1.45 m <sup>3</sup> /s	1.20	
November minimum monthly discharge:	0.95 m <sup>3</sup> /s	1.45 m <sup>3</sup> /s	1.19	
December minimum monthly discharge:	0.81 m <sup>3</sup> /s	1.23 m <sup>3</sup> /s	1.18	
January minimum monthly discharge:	0.8 m <sup>3</sup> /s	1.23 m <sup>3</sup> /s	1.21	
February minimum monthly discharge:	0.76 m <sup>3</sup> /s	1.15 m <sup>3</sup> /s	1.17	
March minimum monthly discharge:	2.19 m <sup>3</sup> /s	3.16 m <sup>3</sup> /s	1.04	
April minimum monthly discharge:	11.6 m <sup>3</sup> /s	16.70 m <sup>3</sup> /s	1.03	
May minimum monthly discharge:	17.5 m <sup>3</sup> /s	26.46 m <sup>3</sup> /s	1.17	
June minimum monthly discharge:	4.19 m <sup>3</sup> /s	6.62 m <sup>3</sup> /s	1.30	
July minimum monthly discharge:	0.38 m <sup>3</sup> /s	0.59 m <sup>3</sup> /s	1.25	
August minimum monthly discharge:	0.08 m <sup>3</sup> /s	0.13 m <sup>3</sup> /s	1.29	
September minimum monthly discharge:	0.08 m <sup>3</sup> /s	0.13 m <sup>3</sup> /s	1.27	

**Drainage area ratio technique:**

(Olson and Mack, 2011)

Streamgage: Malmard River near Shawalat (325100063180000)		6-0.L00-1A		
Drainage area, km <sup>2</sup> : 1477		<b>Results</b>		
Streamgage data:		<b>Ungaged site estimate:</b>	area exponent	
7Q10:	0.03 m <sup>3</sup> /s	0.05 m <sup>3</sup> /s	1.14	
7Q2:	0.16 m <sup>3</sup> /s	0.26 m <sup>3</sup> /s	1.03	
90% flow duration:	0.18 m <sup>3</sup> /s	0.33 m <sup>3</sup> /s	1.25	
80% flow duration:	0.28 m <sup>3</sup> /s	0.49 m <sup>3</sup> /s	1.18	
Mean annual discharge:	3.93 m <sup>3</sup> /s	6.47 m <sup>3</sup> /s	1.04	
October mean monthly discharge:	0.33 m <sup>3</sup> /s	0.56 m <sup>3</sup> /s	1.10	
November mean monthly discharge:	0.67 m <sup>3</sup> /s	1.13 m <sup>3</sup> /s	1.09	
December mean monthly discharge:	1.27 m <sup>3</sup> /s	2.13 m <sup>3</sup> /s	1.08	
January mean monthly discharge:	2.76 m <sup>3</sup> /s	4.60 m <sup>3</sup> /s	1.06	
February mean monthly discharge:	5.9 m <sup>3</sup> /s	9.55 m <sup>3</sup> /s	1.00	
March mean monthly discharge:	10.4 m <sup>3</sup> /s	16.19 m <sup>3</sup> /s	0.92	
April mean monthly discharge:	14.4 m <sup>3</sup> /s	22.19 m <sup>3</sup> /s	0.90	
May mean monthly discharge:	7.9 m <sup>3</sup> /s	13.09 m <sup>3</sup> /s	1.05	
June mean monthly discharge:	2.43 m <sup>3</sup> /s	4.28 m <sup>3</sup> /s	1.18	
July mean monthly discharge:	0.84 m <sup>3</sup> /s	1.41 m <sup>3</sup> /s	1.08	
August mean monthly discharge:	0.38 m <sup>3</sup> /s	0.63 m <sup>3</sup> /s	1.06	
September mean monthly discharge:	0.26 m <sup>3</sup> /s	0.44 m <sup>3</sup> /s	1.09	
October minimum monthly discharge:	0.04 m <sup>3</sup> /s	0.07 m <sup>3</sup> /s	1.20	
November minimum monthly discharge:	0.15 m <sup>3</sup> /s	0.27 m <sup>3</sup> /s	1.19	
December minimum monthly discharge:	0.22 m <sup>3</sup> /s	0.39 m <sup>3</sup> /s	1.18	
January minimum monthly discharge:	0.25 m <sup>3</sup> /s	0.45 m <sup>3</sup> /s	1.21	
February minimum monthly discharge:	0.76 m <sup>3</sup> /s	1.33 m <sup>3</sup> /s	1.17	
March minimum monthly discharge:	1.71 m <sup>3</sup> /s	2.82 m <sup>3</sup> /s	1.04	
April minimum monthly discharge:	2.59 m <sup>3</sup> /s	4.26 m <sup>3</sup> /s	1.03	
May minimum monthly discharge:	0.92 m <sup>3</sup> /s	1.62 m <sup>3</sup> /s	1.17	
June minimum monthly discharge:	0.26 m <sup>3</sup> /s	0.49 m <sup>3</sup> /s	1.30	
July minimum monthly discharge:	0.06 m <sup>3</sup> /s	0.11 m <sup>3</sup> /s	1.25	
August minimum monthly discharge:	0.01 m <sup>3</sup> /s	0.02 m <sup>3</sup> /s	1.29	
September minimum monthly discharge:	0.06 m <sup>3</sup> /s	0.11 m <sup>3</sup> /s	1.27	