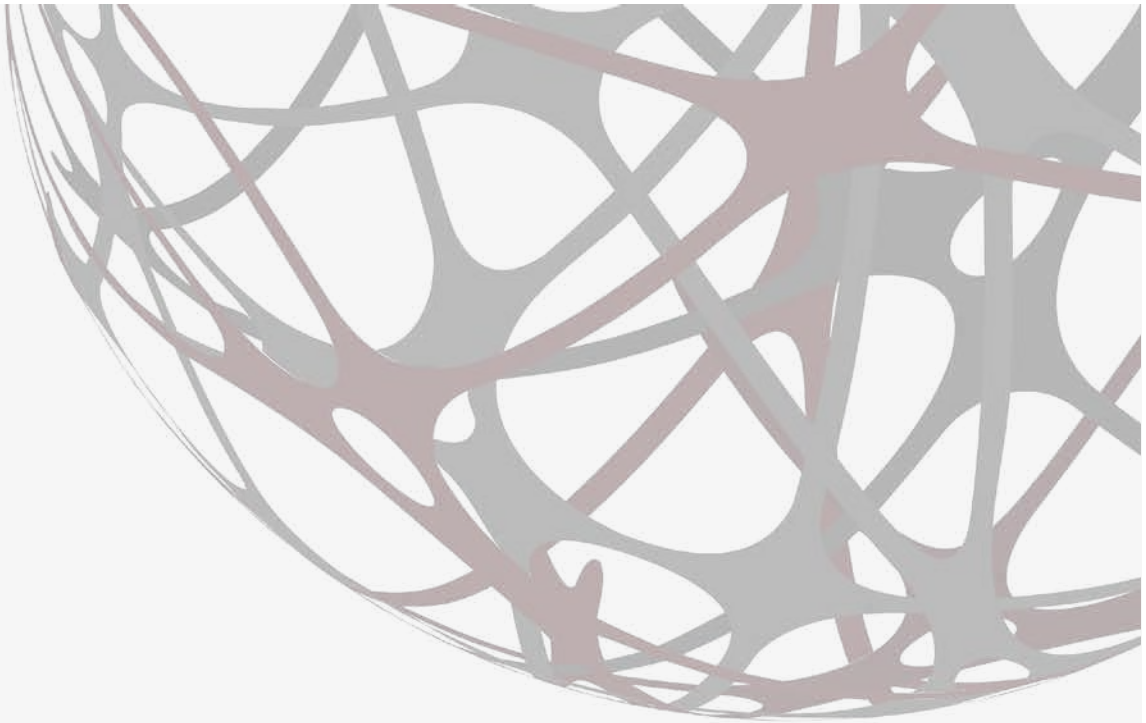


Risk Landscape in Afghanistan
(Population Exposures on Natural Hazards)

Better Data | Better Decisions | Better Outcomes

www.immap.org

Some Constraints and Clarification

- No in-house technical person to conduct scientific models or forecasting.
- IM, GIS and Remote Sensing capabilities.
- Utilization of existing hazard products and available resources on/offline.
- Spatial-temporal, geoprocessing tools, GEE scripts.
- Previous DRR products/data support to various partners, agencies and sectors.
- Provide hazards and climate-related maps/data to aide in other factors to consider in generation of planning figures.
- Should not be interpreted as projections, but a consideration to interpolate to other agencies' scientific evidence, studies or sector indicators.

Process

Mapping Hazards/Climate

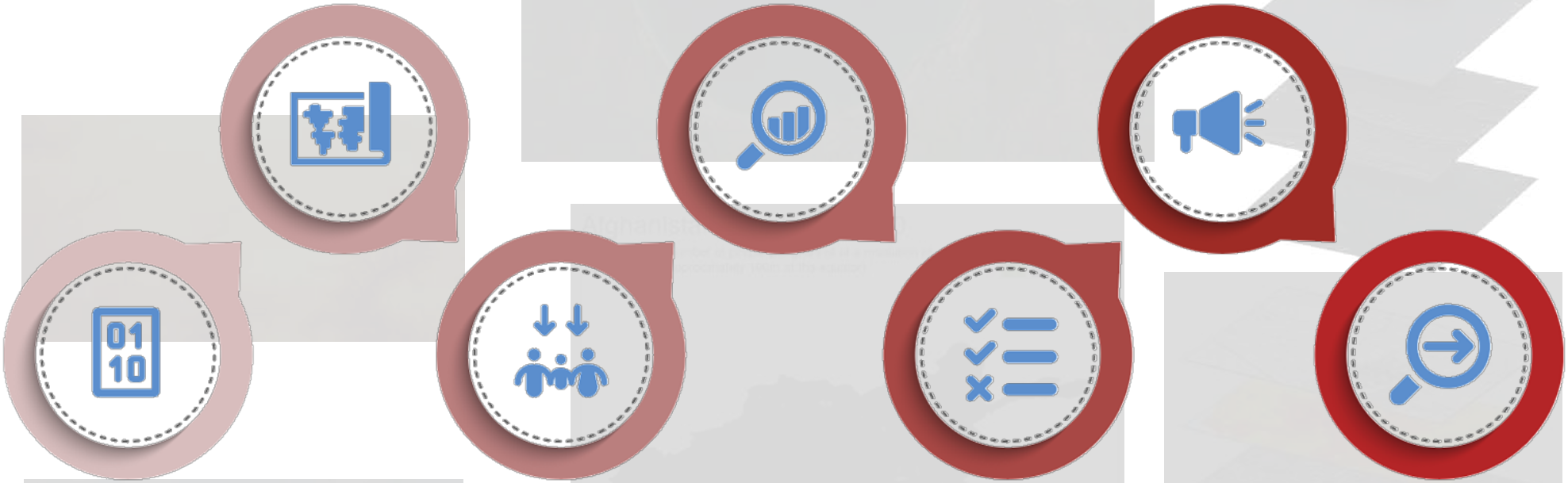
- Geo-spatial processing
- Periodic analysis
- Use of GEE scripts

Risk Analysis

- Hazard-Exposure Interaction
- Period of focus
- Natural incidents aff. pop.

Communicate/Collaborate

- Maps and data sharing
- Engagement
- Needs-based modification



Data Gathering

- Hazards
- Climate factors
- Population

Assess Population Exposure

- Overlay population layers
- Vulnerability

Ranking/Prioritization

- Hotspots ID (targeted interventions)
- Categorization (preparedness)
- Geographic coverage (locality)

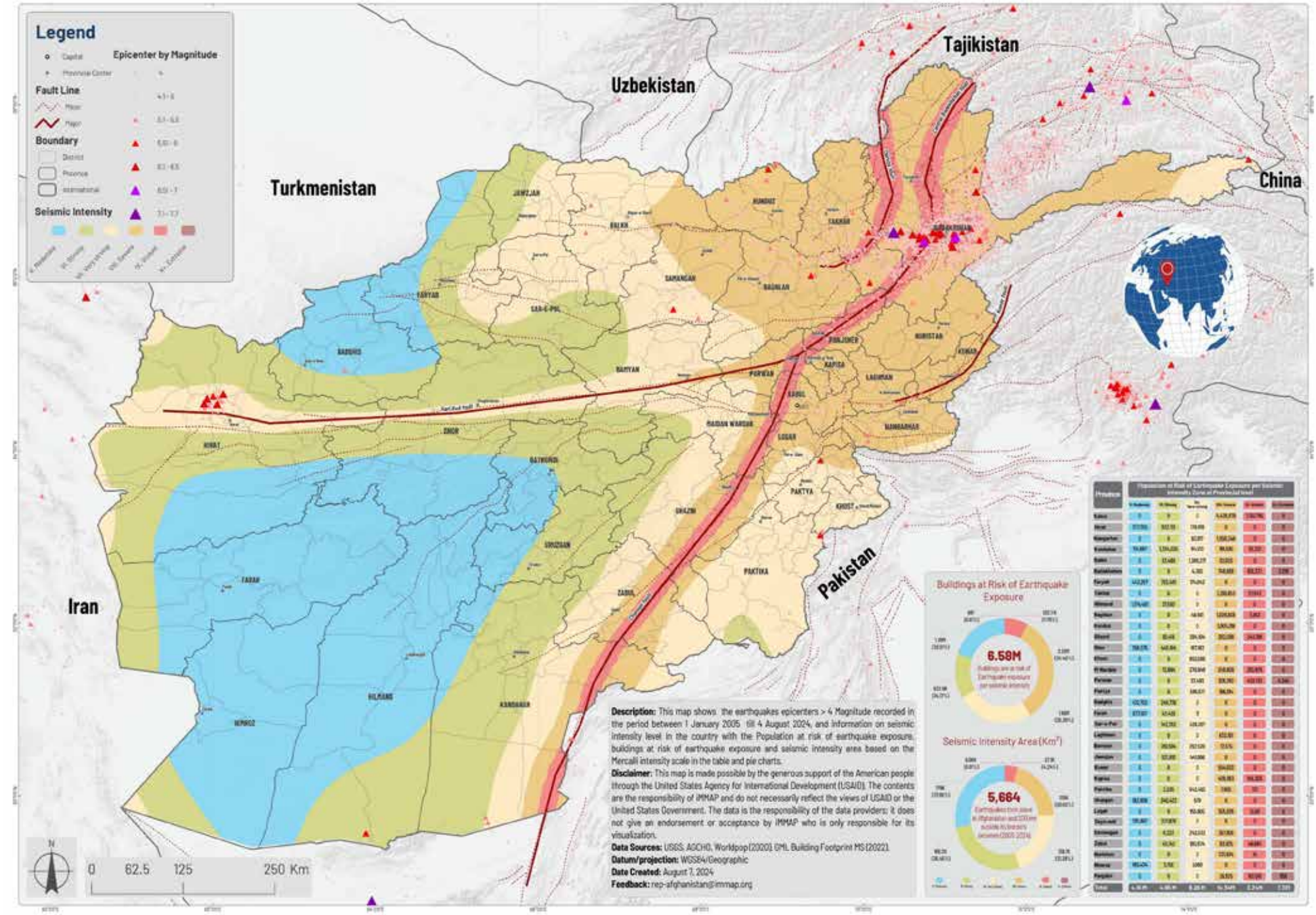
Updating

- Monitoring new data
- Period Selection
- Feedback / Requests

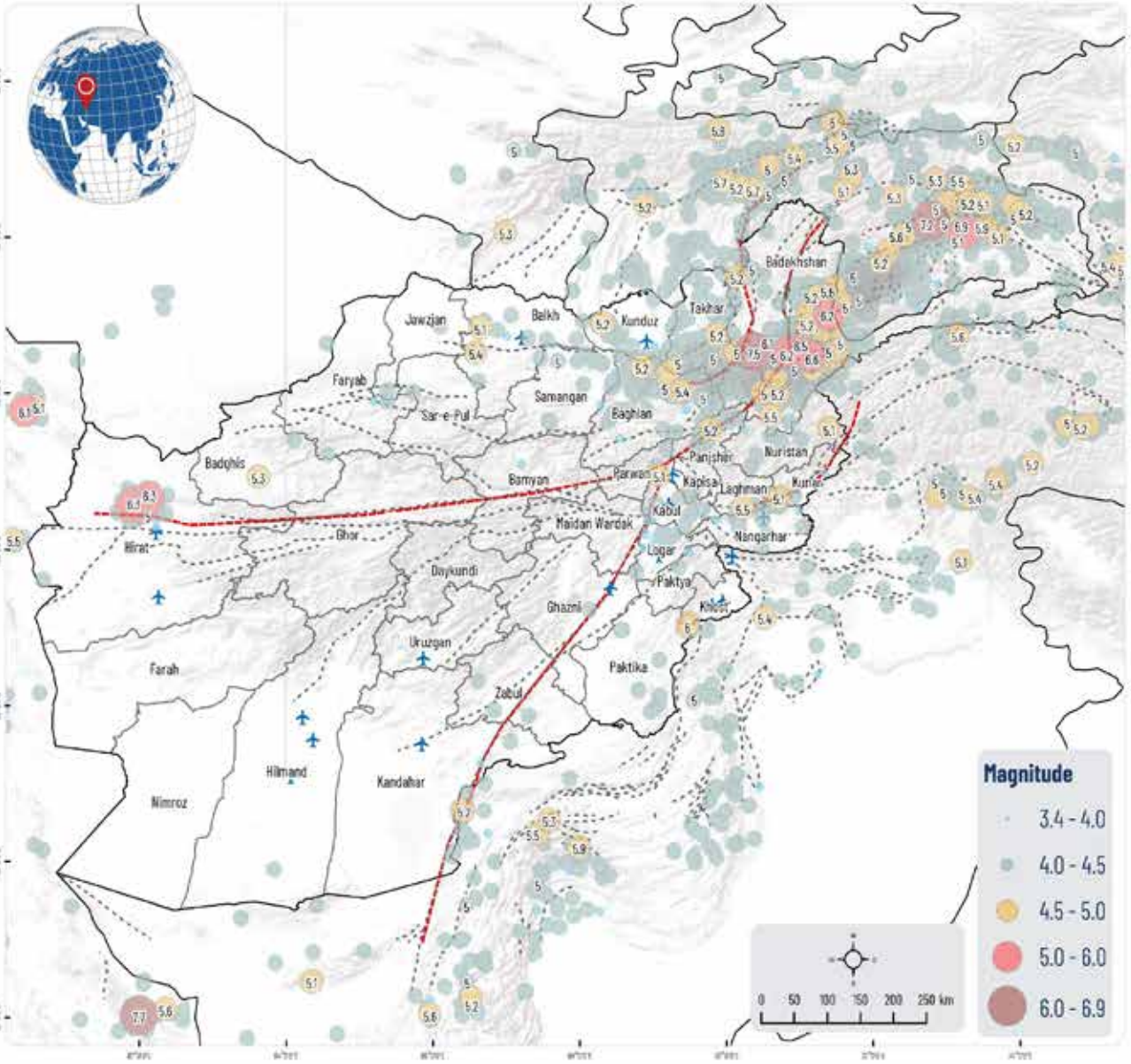
Map Products and Associated Datasets

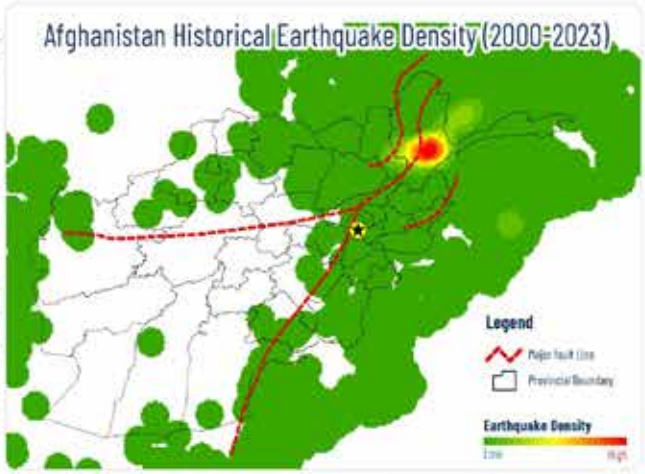

Earthquake

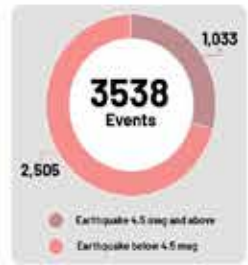
AFGHANISTAN | Earthquake Occurrences, Magnitude, and Hazard Map



Afghanistan: Earthquake Events 2012 to 2023

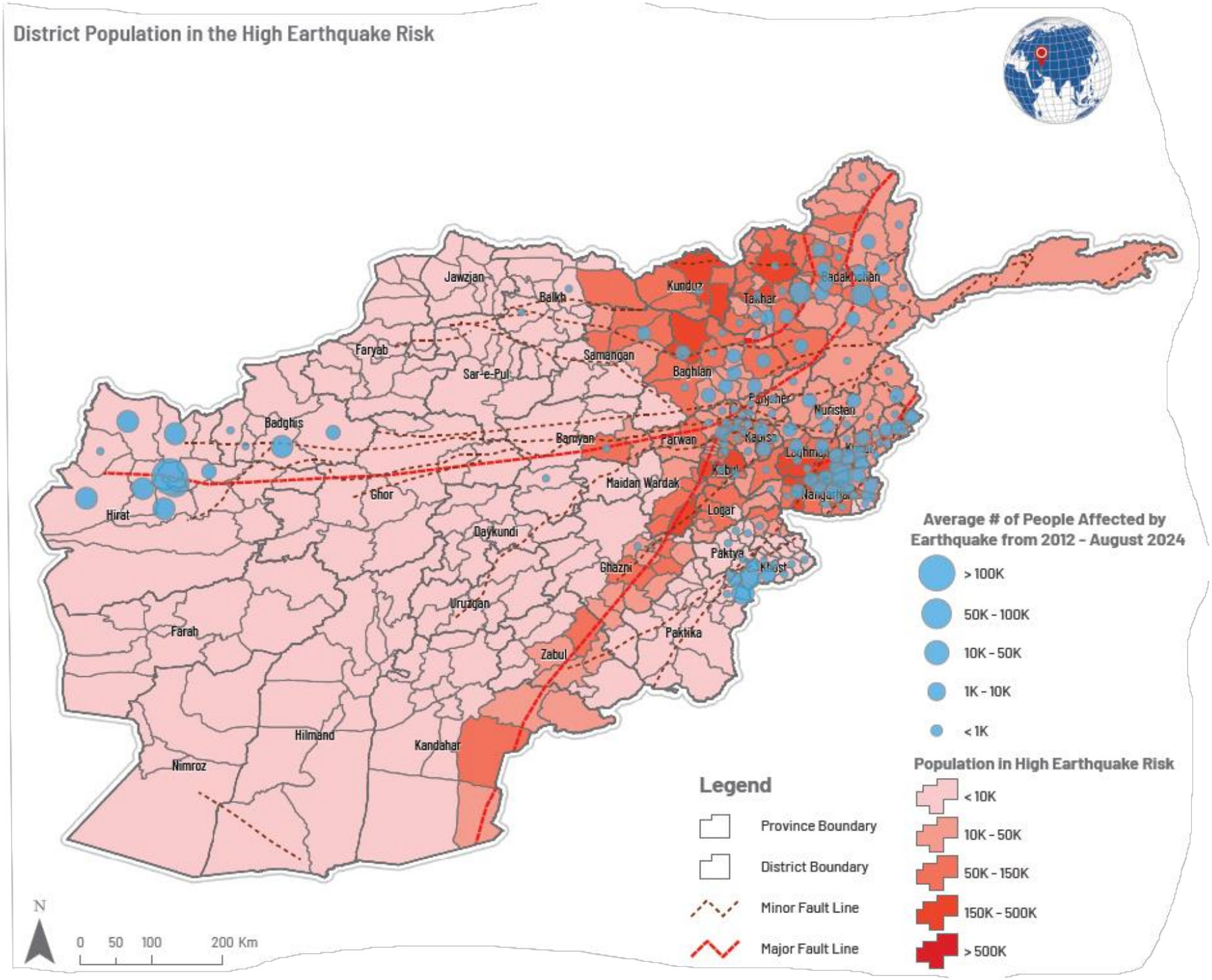






Description: This comprehensive map provides an overview of the earthquake events that occurred from 2012 to 2023, encompassing both Afghanistan and regions up to 200 kilometers beyond its borders. Known for its high seismic activity, Afghanistan is recognized as one of the world's most seismically active countries. The data utilized in this map were sourced from the USGS online database (https://earthquake.usgs.gov/earthquakes/search/).

 Feedback: rep-afghanistan@immap.org, **Datum/Projection:** WGS84/Geographic, **Data Sources:** USGS, AGHCHO 2017, **Produced By:** IMMAP, **Size:** A3 (297 x 420 mm), **Date Created:** August 27, 2024.


District Population in the High Earthquake Risk
Jawzjan
Balkh
Kunduz
Takhar
Badakhshan
Faryab
Samangan
Baghlan
Sar-e-Pul
Panjsher
Nuristan
Badghis
Bamyan
Parwan
Kapisa
Laghman
Kabul
Maidan Wardak
Ghor
Nangarhar
Hirat
Logar
Daykundi
Paktya
Khost
Ghazni
Uruzgan
Farah
Paktika
Zabul
Hilmand
Kandahar
Nimroz
Average # of People Affected by Earthquake from 2012 - August 2024
> 100K
50K - 100K
10K - 50K
1K - 10K
< 1K
Legend
Province Boundary
District Boundary
Minor Fault Line
Major Fault Line
Population in High Earthquake Risk
< 10K
10K - 50K
50K - 150K
150K - 500K
> 500K
N
0 50 100 200 Km

Population Exposed to EQ Hazard & Affected People by Province

PROVINCE	Population Exposed to EQ Hazard	EQ Affected 2012-2024 (Cumulative)	EQ Affected 2012-2024 (Ave)
Kabul	5,582,635	1,623	325
Nangarhar	1,956,336	74,367	1,352
Badakhshan	1,368,263	60,200	2,150
Takhar	1,325,588	10,205	638
Baghlan	1,031,951	19,452	1,216
Kunduz	1,005,216	46	23
Parwan	758,664	2,746	343
Laghman	633,159	6,496	433
Ghazni	625,275	42	42
Kunar	554,027	29,497	615
Kapisa	553,263	6,267	482
Maidan Wardak	502,279	-	-
Logar	368,831	-	-
Samangan	257,953	1,788	1,788
Nuristan	231,835	7,274	808
Panjsher	180,894	2,267	252
Kandahar	173,913	-	-
Paktya	166,510	1,024	146
Zabul	160,604	-	-
Balkh	82,023	77	26
Bamyan	72,574	69	23
Paktika	7,741	45,079	11,270
Badghis	-	20,728	3,455
Daykundi	-	-	-
Farah	-	-	-
Faryab	-	-	-
Ghor	-	-	-
Hilmand	-	-	-
Hirat	-	318,268	790
Jawzjan	-	-	-
Khost	-	45,891	4,172
Nimroz	-	-	-
Sar-e-Pul	-	-	-
Uruzgan	-	-	-

Flooding

AFGHANISTAN | Flood Risk Exposure Map

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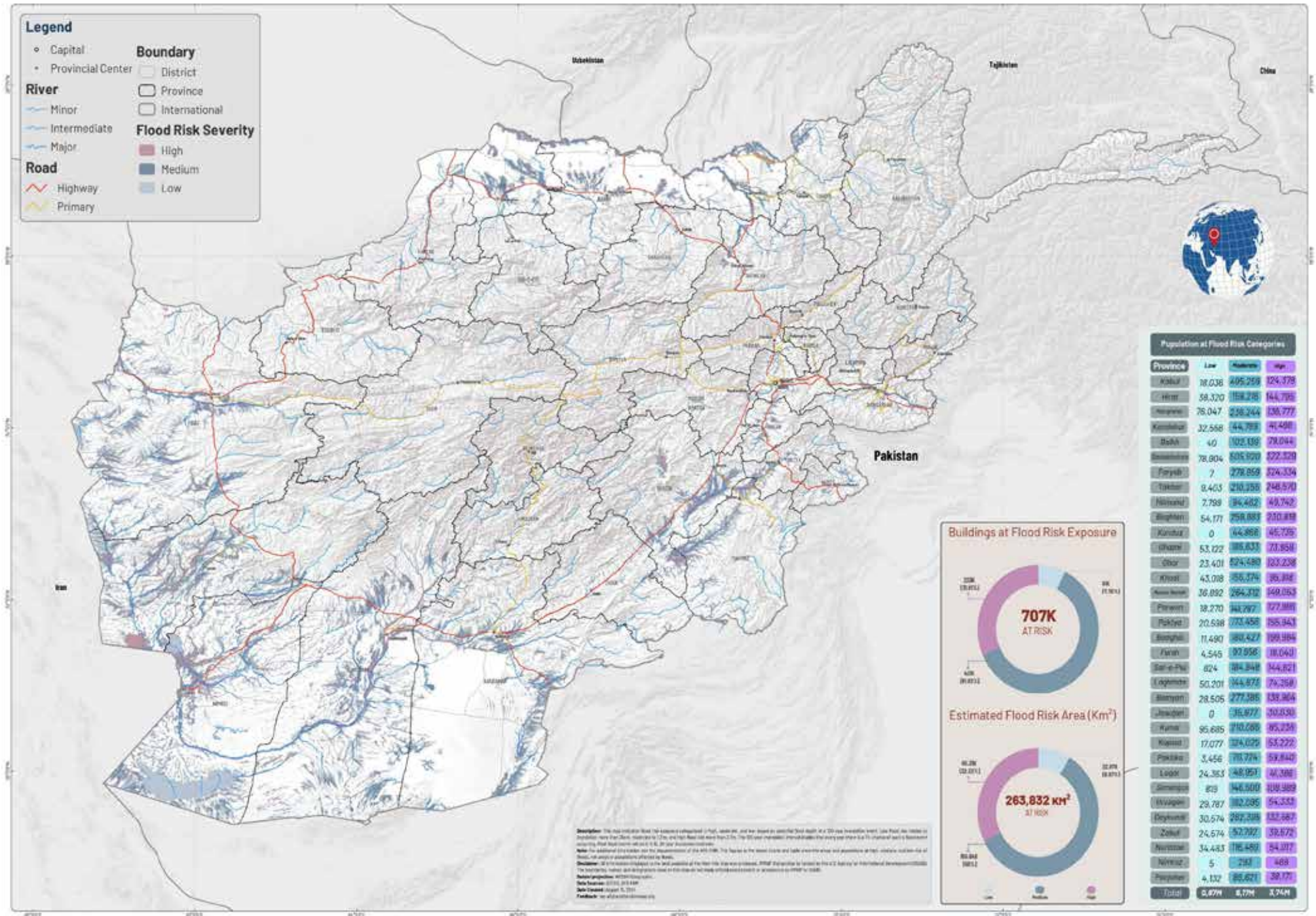
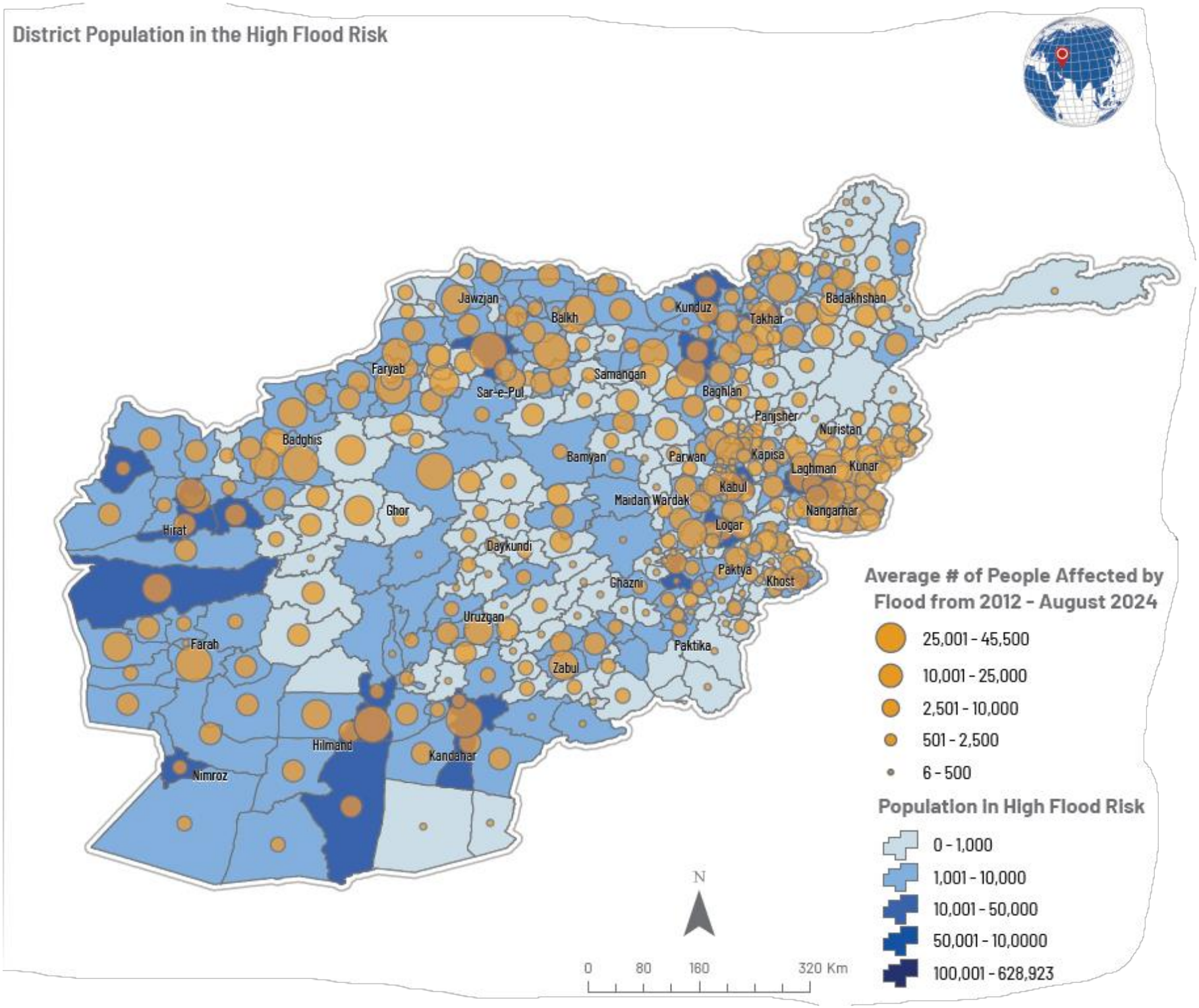


Population at Flood Risk Categories

Province	Low	Moderate	High
Kabul	18,038	495,259	124,379
Herat	58,320	159,216	144,795
Nangarhar	76,047	238,244	136,777
Kandahar	32,568	44,793	41,498
Balkh	40	102,139	29,044
Badakhshan	78,804	505,920	222,329
Faryab	7	278,859	324,334
Takhar	9,403	210,255	248,570
Nimroz	7,799	34,462	49,742
Baghlan	54,171	258,883	210,818
Kunduz	0	64,866	46,705
Ghazni	53,122	185,833	73,958
Ghor	23,401	524,480	223,238
Khost	43,018	155,774	85,898
Kunar	36,892	264,312	149,053
Paktia	18,270	143,787	127,988
Paktika	20,538	173,456	155,943
Badghis	11,490	380,427	199,984
Farah	4,545	97,956	18,040
Sar-e-Pul	824	184,348	144,821
Logar	50,201	144,875	74,258
Bamyan	28,505	277,385	138,364
Jowzjan	0	35,977	30,830
Kunar	95,685	210,068	85,236
Khost	17,077	124,029	53,222
Paktika	3,456	113,774	59,840
Logar	24,353	48,957	41,386
Samangan	819	146,500	108,989
Uruzgan	29,787	182,095	54,353
Daykundi	30,574	282,208	132,667
Zabul	24,574	52,702	39,672
Nuristan	34,483	116,492	54,017
Nimroz	5	243	469
Panjshir	4,132	80,621	38,171
Total	0.07M	6.77M	3.74M

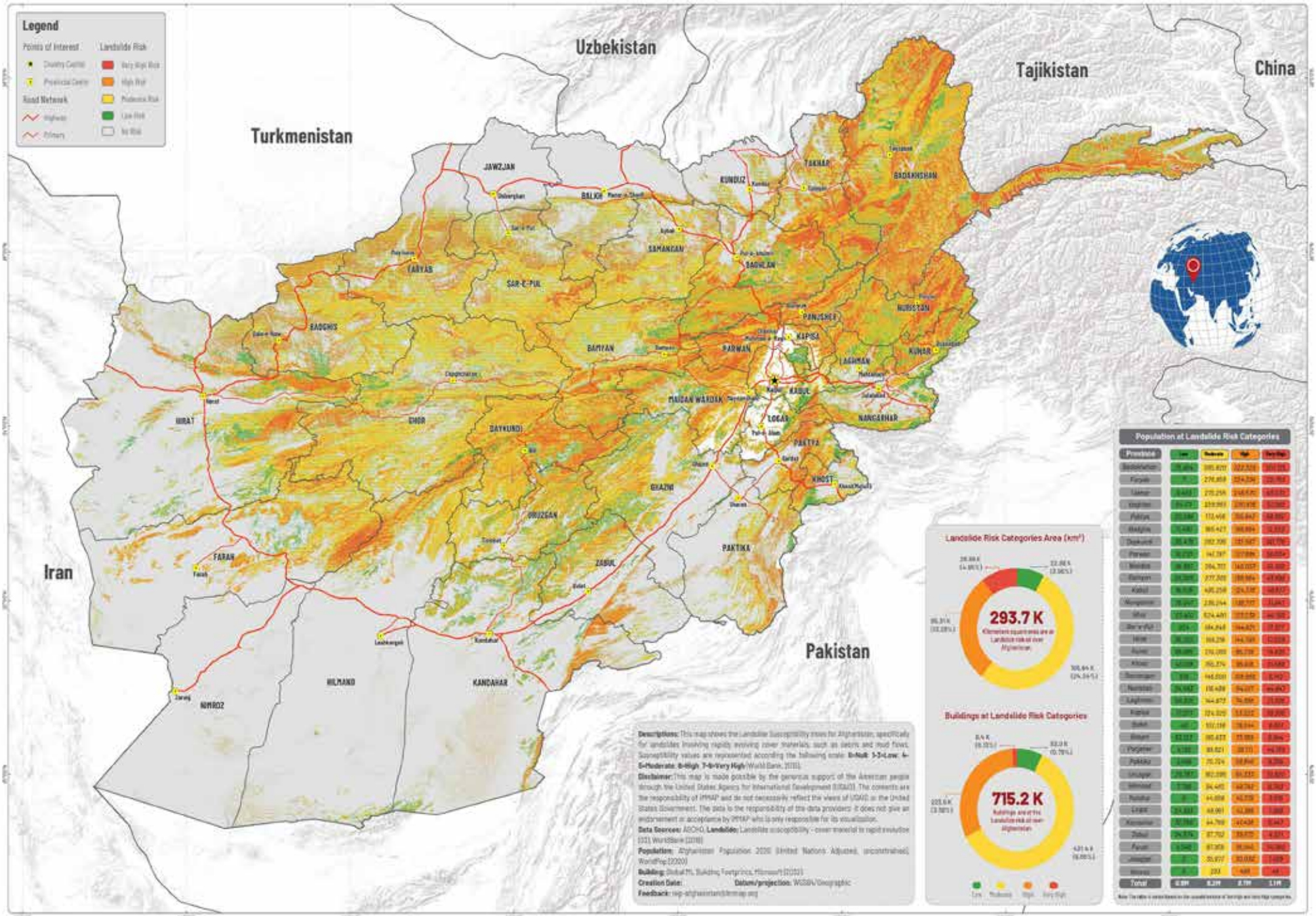

District Population in the High Flood Risk
Jawzjan
Balkh
Kunduz
Takhar
Badakhshan
Faryab
Samangan
Sar-e-Pul
Baghlan
Panjsher
Nuristan
Badghis
Bamyan
Parwan
Kapisa
Laghman
Kunar
Kabul
Maidan Wardak
Nangarhar
Ghor
Hirat
Logar
Daykundi
Paktya
Khost
Ghazni
Uruzgan
Farah
Paktika
Zabul
Hilmand
Kandahar
Nimroz
Average # of People Affected by Flood from 2012 - August 2024
25,001 - 45,500
10,001 - 25,000
2,501 - 10,000
501 - 2,500
6 - 500
Population in High Flood Risk
0 - 1,000
1,001 - 10,000
10,001 - 50,000
50,001 - 10,0000
100,001 - 628,923
N
0
80
160
320 Km

Population Exposed to FLOOD Hazard & Affected People by Province

PROVINCE	Population Exposed to FLOOD Hazard	Flood Affected 2012-2024 (Cumulative)	Flood Affected 2012-2024 (Ave)
Badakhshan	27,679	56,538	284
Badghis	17,934	107,141	1,291
Baghlan	53,636	68,596	448
Balkh	38,047	101,163	1,065
Bamyan	11,961	14,853	158
Daykundi	4,372	10,665	213
Farah	38,284	84,428	2,412
Faryab	23,771	95,522	975
Ghazni	49,842	10,300	129
Ghor	8,646	61,235	729
Hilmand	112,002	78,174	1,325
Hirat	197,668	82,489	509
Jawzjan	30,854	47,479	1,439
Kabul	697,236	39,318	546
Kandahar	86,561	60,627	787
Kapisa	15,376	13,009	169
Khost	34,521	19,364	251
Kunar	19,842	66,994	92
Kunduz	86,757	14,503	201
Laghman	43,884	35,429	114
Logar	33,650	23,459	385
Maidan Wardak	16,296	2,753	106
Nangarhar	106,836	106,955	217
Nimroz	36,682	10,943	456
Nuristan	1,812	9,014	215
Paktika	25,974	7,705	164
Paktya	19,245	19,941	219
Panjsher	3,521	4,388	81
Parwan	29,840	24,046	178
Samangan	7,909	32,569	479
Sar-e-Pul	22,575	58,236	1,664
Takhar	39,798	57,738	428
Uruzgan	24,949	35,328	883
Zabul	8,405	23,983	571


Landslide

AFGHANISTAN | Landslide Multi-Criteria Susceptibility Index



Descriptions: This map shows the Landslide Susceptibility index for Afghanistan, specifically for landslides involving rapidly evolving cover materials, such as debris and mud flows. Susceptibility values are represented according the following scale: **0=Null; 1-3=Low; 4-5=Moderate; 6=High; 7-9=Very High** (World Bank, 2015).

Disclaimer: This map is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of IMMAP and do not necessarily reflect the views of USAID or the United States Government. The data is the responsibility of the data providers: it does not give an endorsement or acceptance by IMMAP who is only responsible for its visualization.

Data Sources: ASCHO, **Landslide:** Landslide susceptibility - cover material to rapid evolution (22), WorldBank (2018)

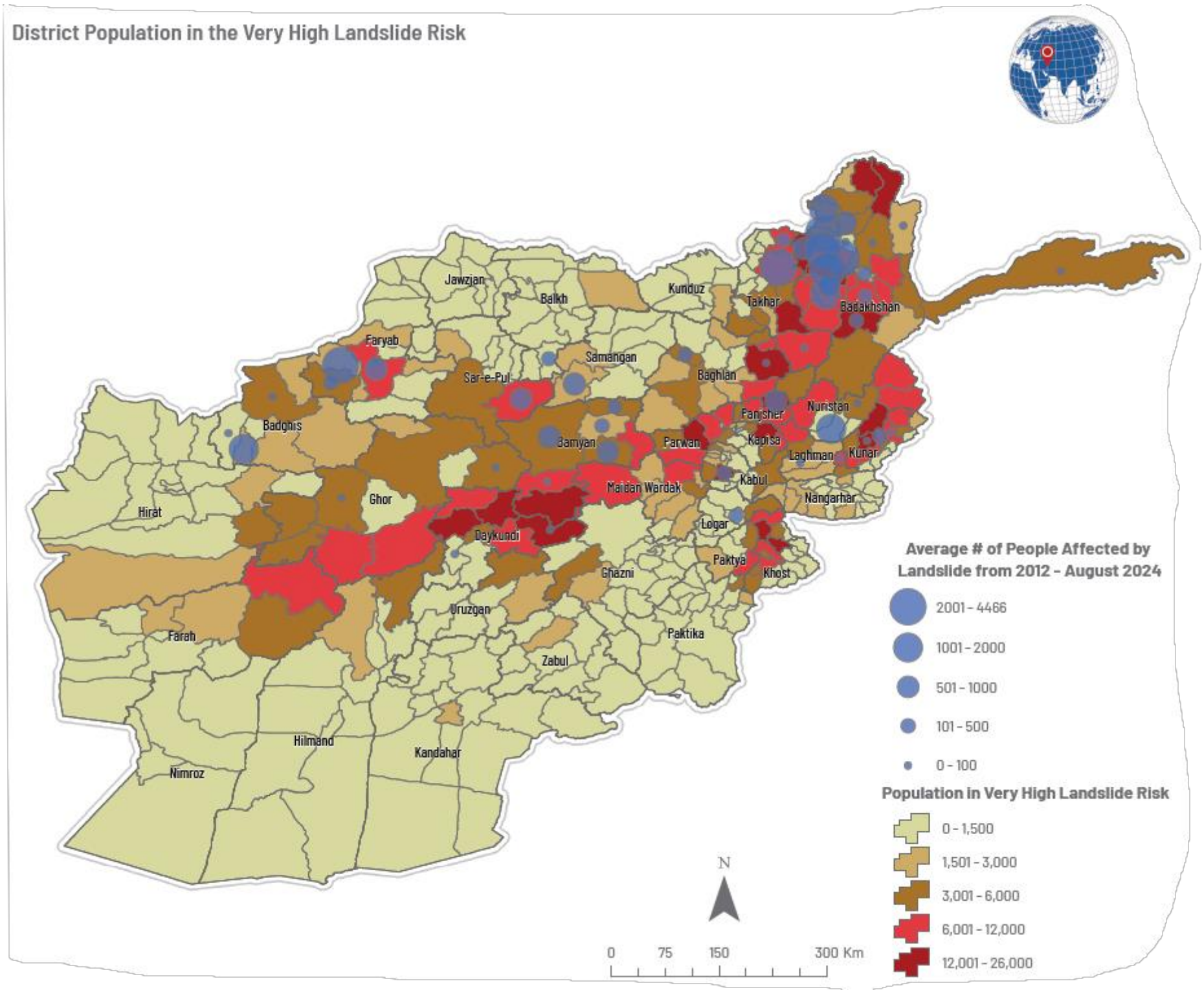
Population: Afghanistan Population 2020 (United Nations Adjusted, unconstrained), WorldPop (2020)

Building: Global ML Building Footprints, Microsoft (2020)

Creation Date: **Datum/projection:** WGS84/Geographic

Feedback: map-afghanistan@immap.org

District Population in the Very High Landslide Risk

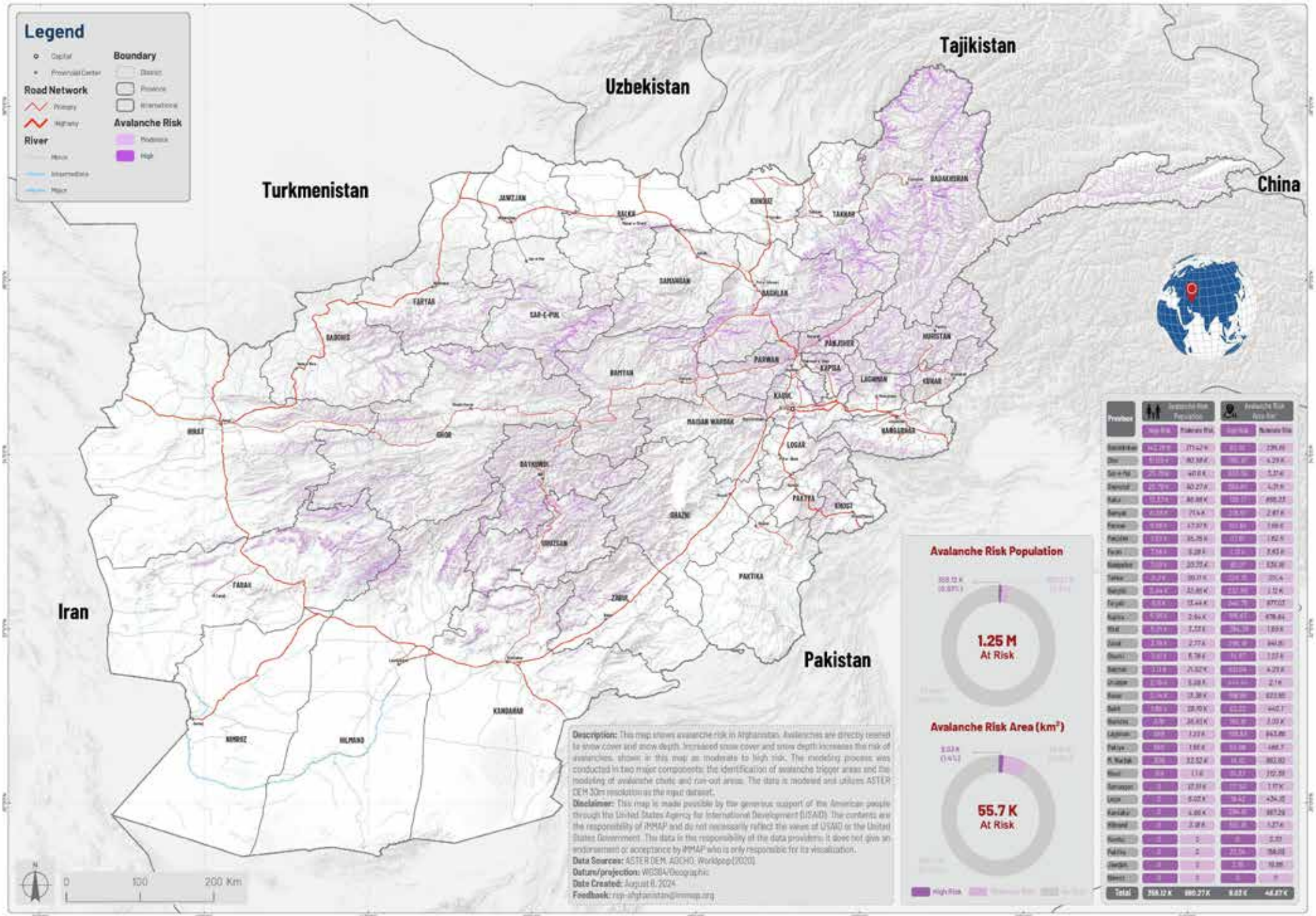


Population Exposed to LANDSLIDE Hazard & Affected People by Province

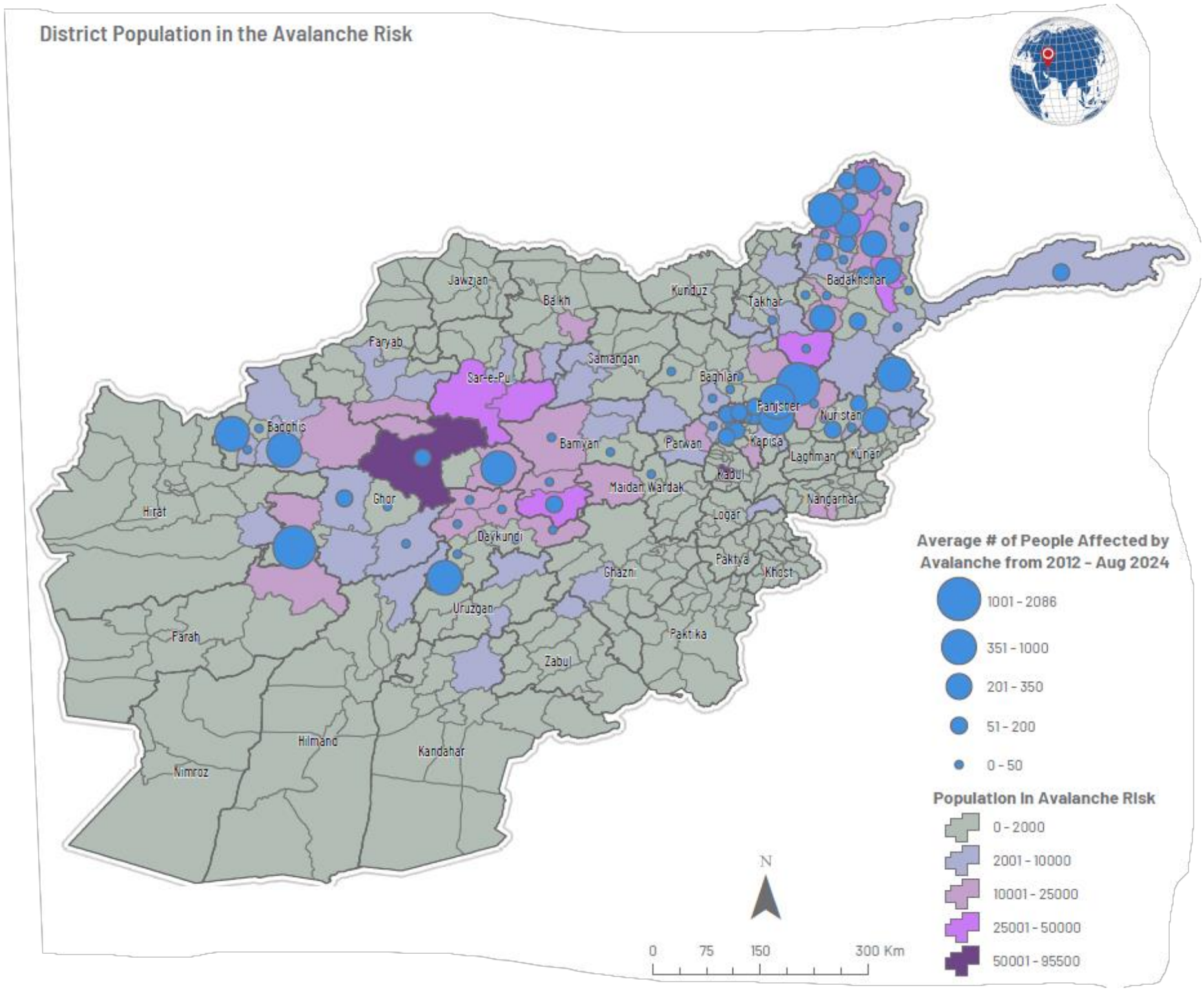
PROVINCE	Population Exposed to LANDSLIDE Hazard	LANDSLIDE Affected 2012-2024 (Cumulative)	LANDSLIDE Affected 2012-2024 (Ave)
Badakhshan	201,125	20,890	550
Badghis	12,922	1,401	280
Baghlan	57,265	450	90
Balkh	6,601	255	128
Bamyan	43,998	1,981	90
Daykundi	60,776	37	12
Farah	24,360	-	-
Faryab	22,769	4,562	760
Ghazni	9,944	-	-
Ghor	44,755	21	7
Hilmand	6,743	-	-
Hirat	17,026	-	-
Jawzjan	1,428	-	-
Kabul	49,877	399	399
Kandahar	6,447	-	-
Kapisa	39,556	-	-
Khost	31,589	-	-
Kunar	74,839	332	55
Kunduz	3,918	-	-
Laghman	21,336	10	10
Logar	7,988	140	140
Maidan Wardak	34,568	-	-
Nangarhar	31,647	14	14
Nimroz	48	-	-
Nuristan	44,947	1,626	542
Paktika	9,255	-	-
Paktya	58,680	-	-
Panjsher	44,139	917	917
Parwan	58,034	-	-
Samangan	8,142	616	616
Sar-e-Pul	17,977	952	476
Takhar	63,033	3,181	289
Uruzgan	10,920	-	-
Zabul	4,921	-	-


Avalanche

AFGHANISTAN | Avalanche Risk Exposure Map



District Population in the Avalanche Risk



Population Exposed to LANDSLIDE Hazard & Affected People by Province

PROVINCE	Population Exposed to AVALANCHE Hazard	AVALANCHE Affected 2012-2024 (Cumulative)	AVALANCHE Affected 2012-2024 (Ave)
Badakhshan	314,681	6,444	102
Badghis	29,131	1,790	358
Baghlan	24,830	92	23
Balkh	31,267	-	-
Bamyan	85,652	233	16
Daykundi	71,529	1,062	62
Farah	17,153	-	-
Faryab	19,040	-	-
Ghazni	7,616	-	-
Ghor	141,441	3,811	272
Hilmand	3,183	-	-
Hirat	8,877	-	-
Jawzjan	-	-	-
Kabul	99,050	-	-
Kandahar	4,972	-	-
Kapisa	8,499	-	-
Khost	1,125	-	-
Kunar	13,889	-	-
Kunduz	-	-	-
Laghman	1,802	-	-
Logar	6,170	-	-
Maidan Wardak	24,254	-	-
Nangarhar	27,784	-	-
Nimroz	-	-	-
Nuristan	39,314	1,202	109
Paktika	-	-	-
Paktya	2,238	-	-
Panjsher	42,893	4,214	527
Parwan	57,920	1,131	103
Samangan	12,380	-	-
Sar-e-Pul	75,436	-	-
Takhar	61,310	136	45
Uruzgan	9,691	-	-
Zabul	6,267	-	-

Province Rank

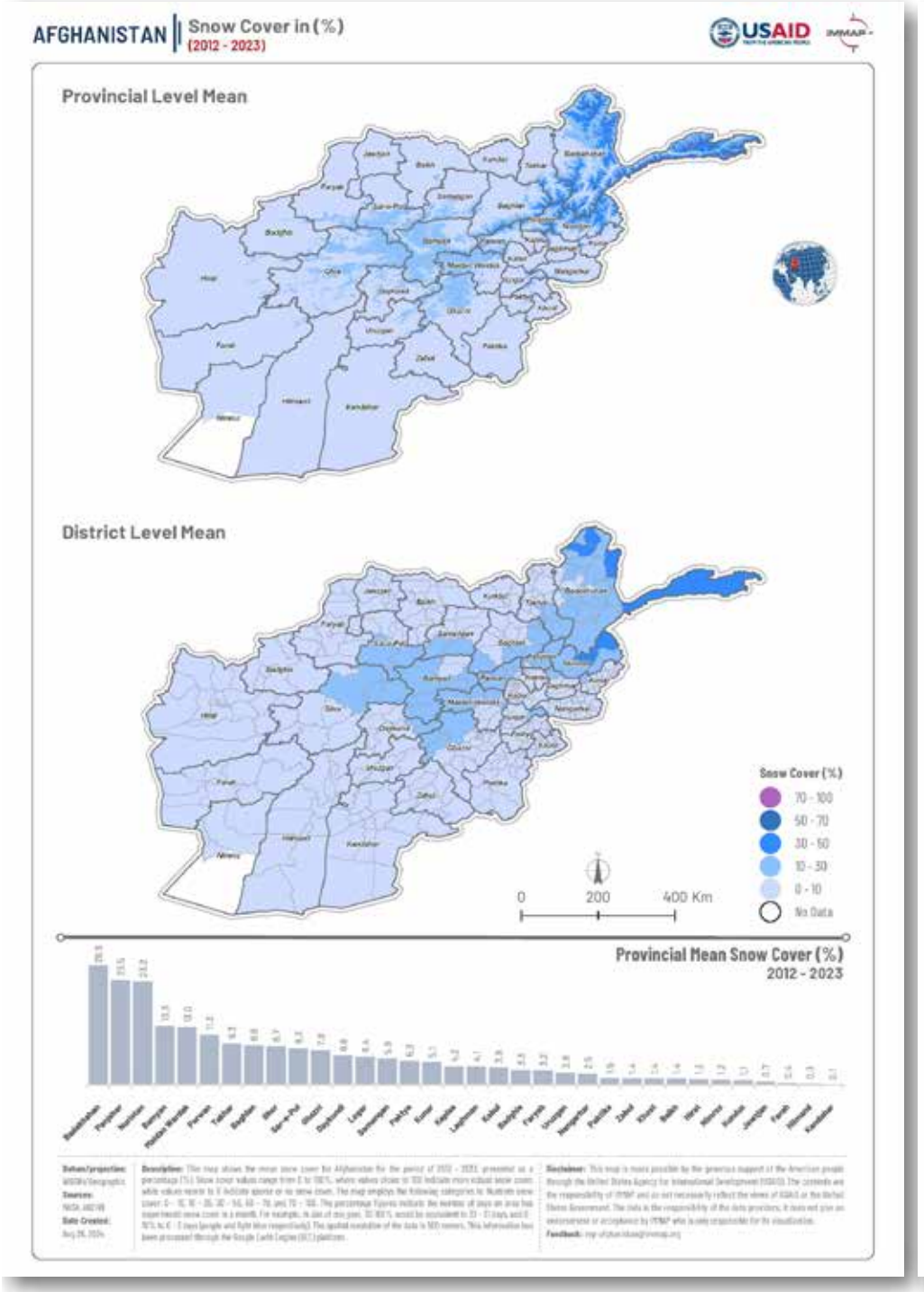
Province Ranking Based on Population Exposures (Highest Hazard Category)

PROVINCE	Pop. (WP-2020)	Earthquake (High)	Flood (High)	Landslide (V.High)	Avalanche (Mod/High)
Badakhshan	1,586,184	11	28	3	2
Badghis	806,743		24	19	10
Baghlan	1,217,198	12	13	10	15
Balkh	1,698,551	21	23	30	16
Bamyan	661,069	19	26	8	5
Daykundi	563,662		33	5	6
Farah	779,019		8	14	13
Faryab	1,544,622		30	21	21
Ghazni	1,092,608	14	12	26	24
Ghor	1,084,482		32	12	4
Hilmand	1,301,674		3	29	29
Hirat	3,109,504		5	28	25
Jawzjan	653,285		10	33	
Kabul	6,182,509	1	2	27	18
Kandahar	1,829,937	20	9	31	26
Kapisa	615,263	3	21	9	20
Khost	1,038,847		17	15	30
Kunar	617,589	4	18	4	12
Kunduz	1,147,657	8	4	32	
Laghman	702,216	2	6	16	28
Logar	576,895	13	7	24	23
Maidan Wardak	932,386	15	27	13	11
Nangarhar	2,267,017	10	11	23	22
Nimroz	209,283		1	34	
Nuristan	260,241	6	34	2	3
Paktika	600,698	22	15	20	
Paktya	840,031	18	22	6	27
Panjsher	202,039	5	29	1	1
Parwan	868,491	9	16	7	8
Samangan	571,209	16	31	22	14
Sar-e-Pul	767,478		19	17	7
Takhar	1,511,962	7	20	11	9
Uruzgan	569,708		14	18	17
Zabul	411,912	17	25	25	19

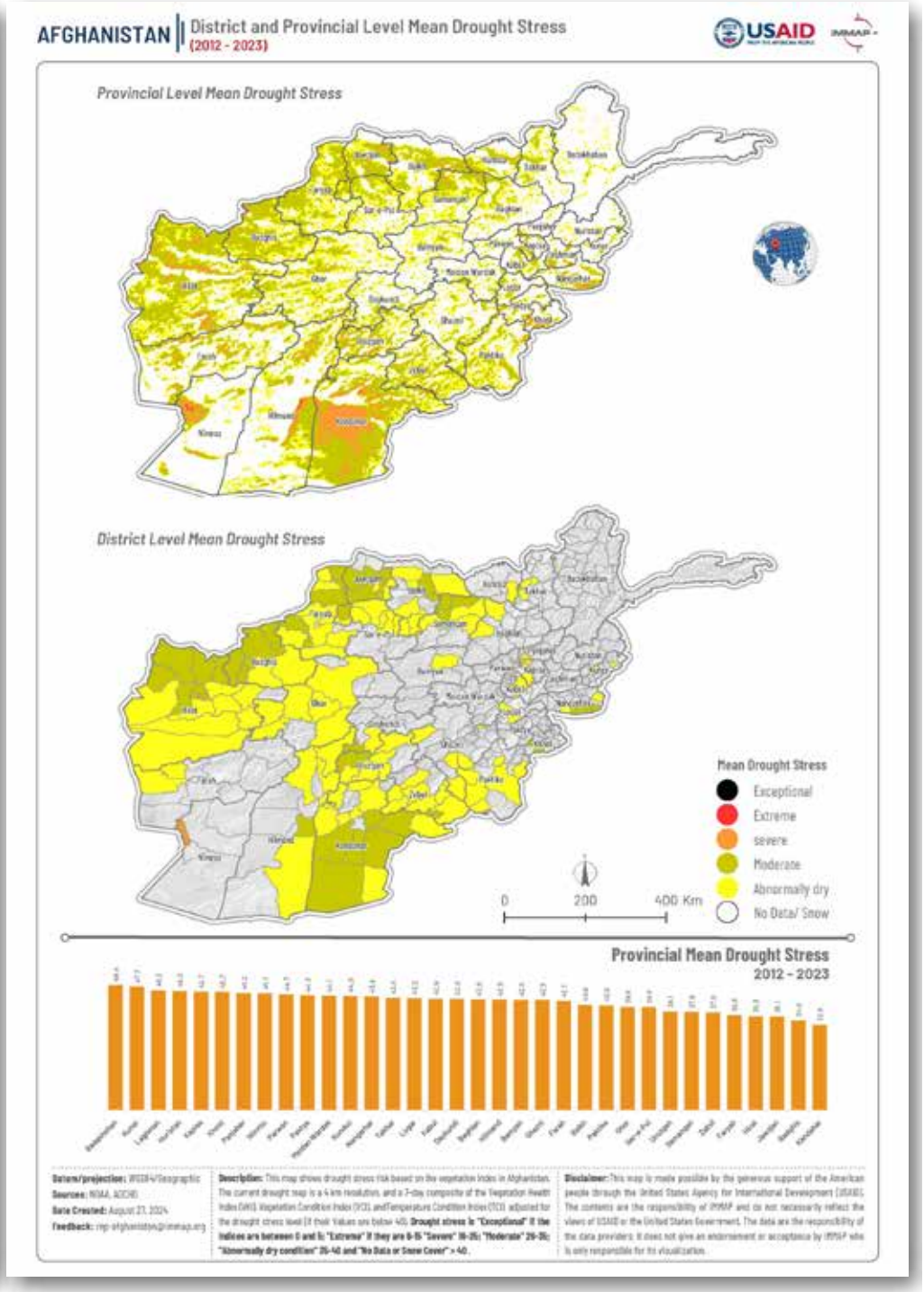
Other Thematic Maps

(covering 2012-2023)

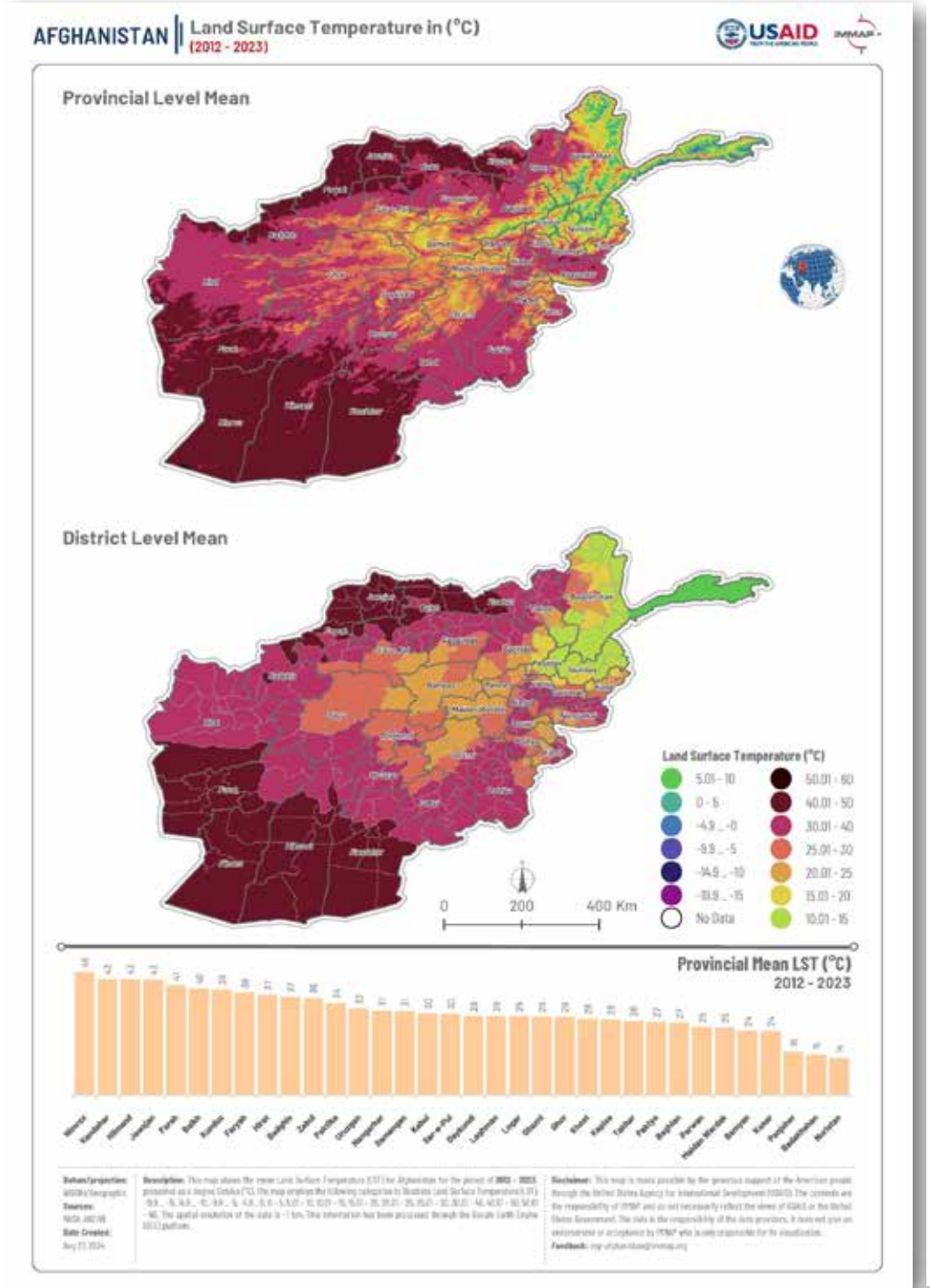
Mean Snow Cover



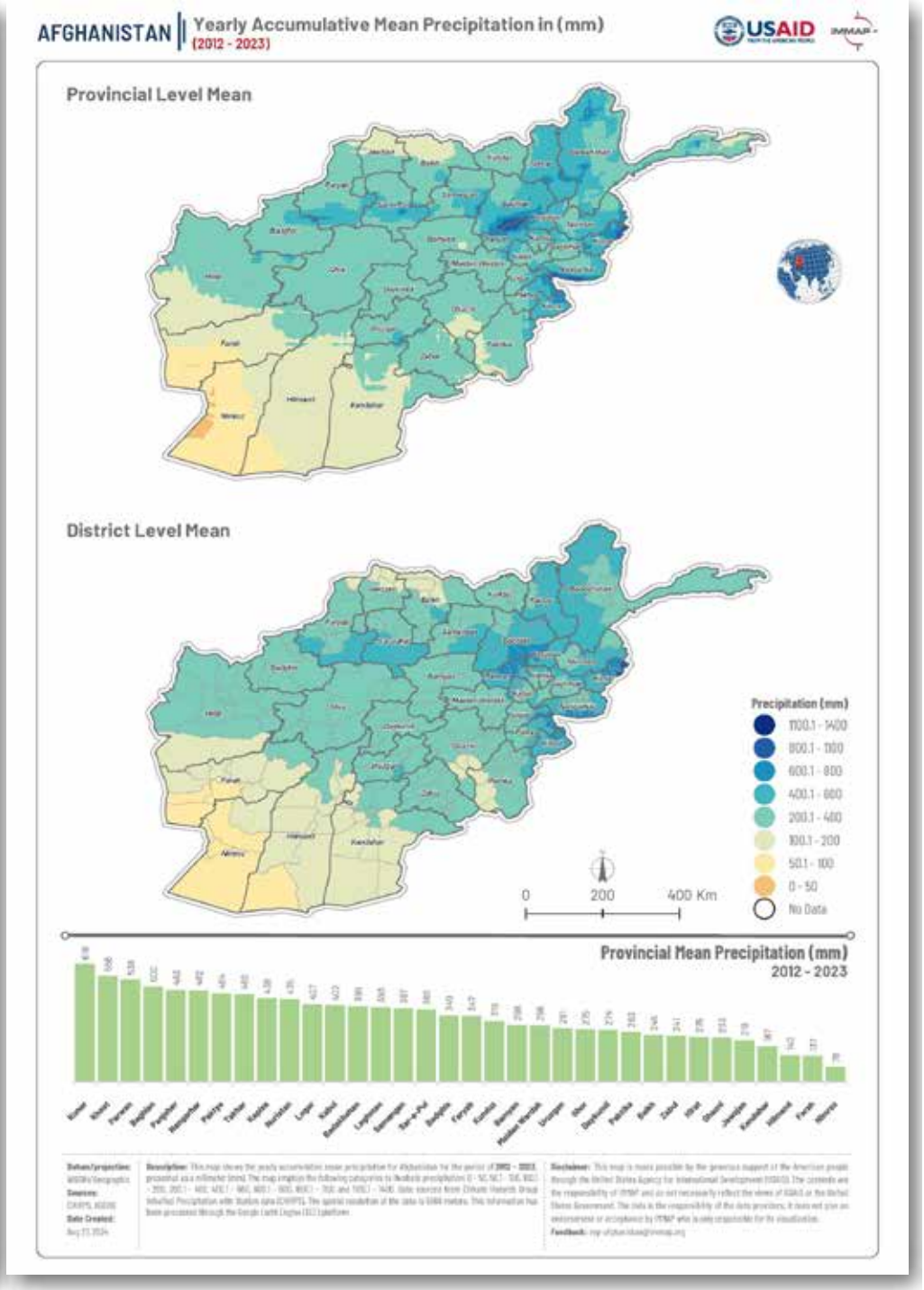
Mean Drought Stress



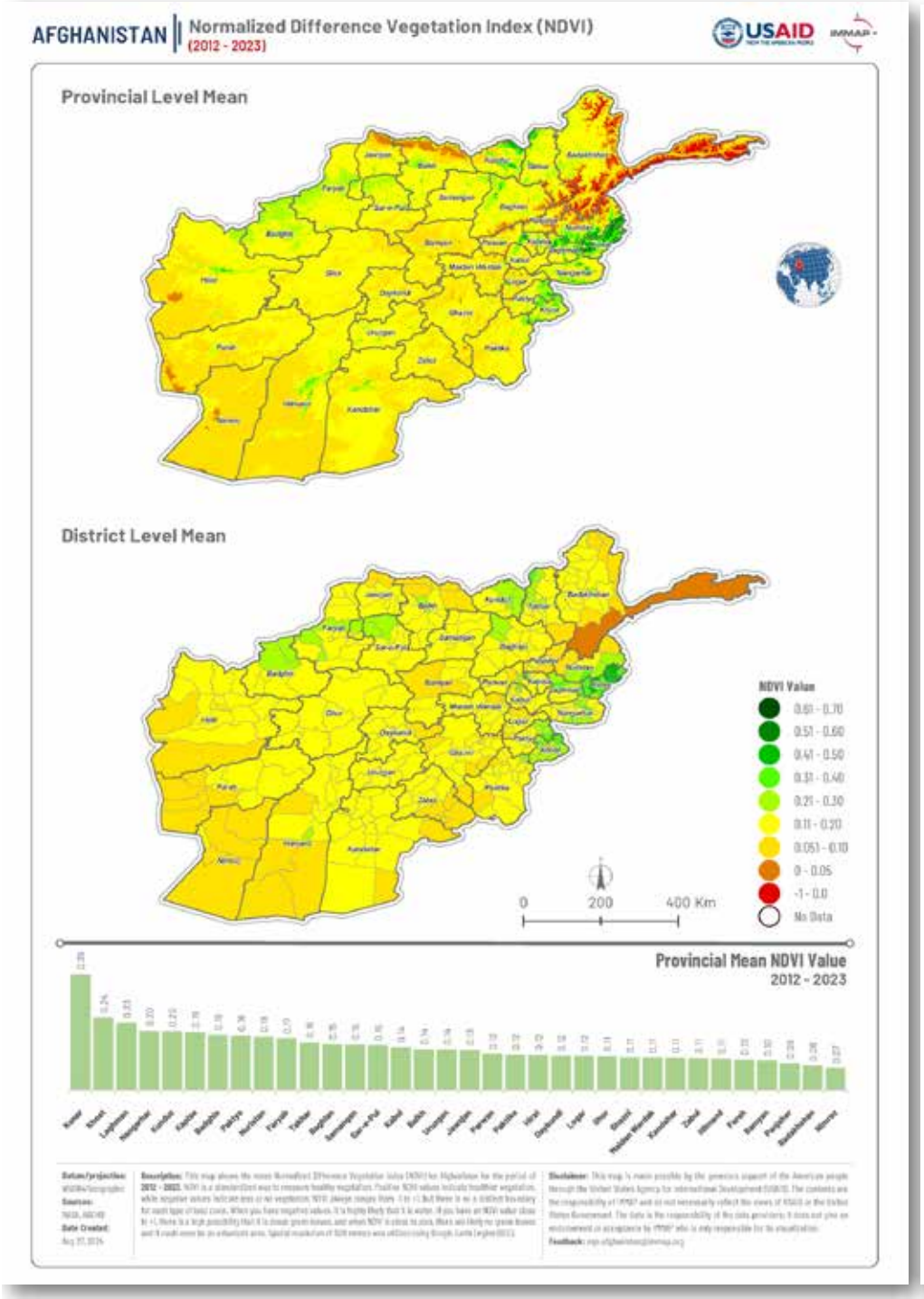
Mean Land Surface Temperature



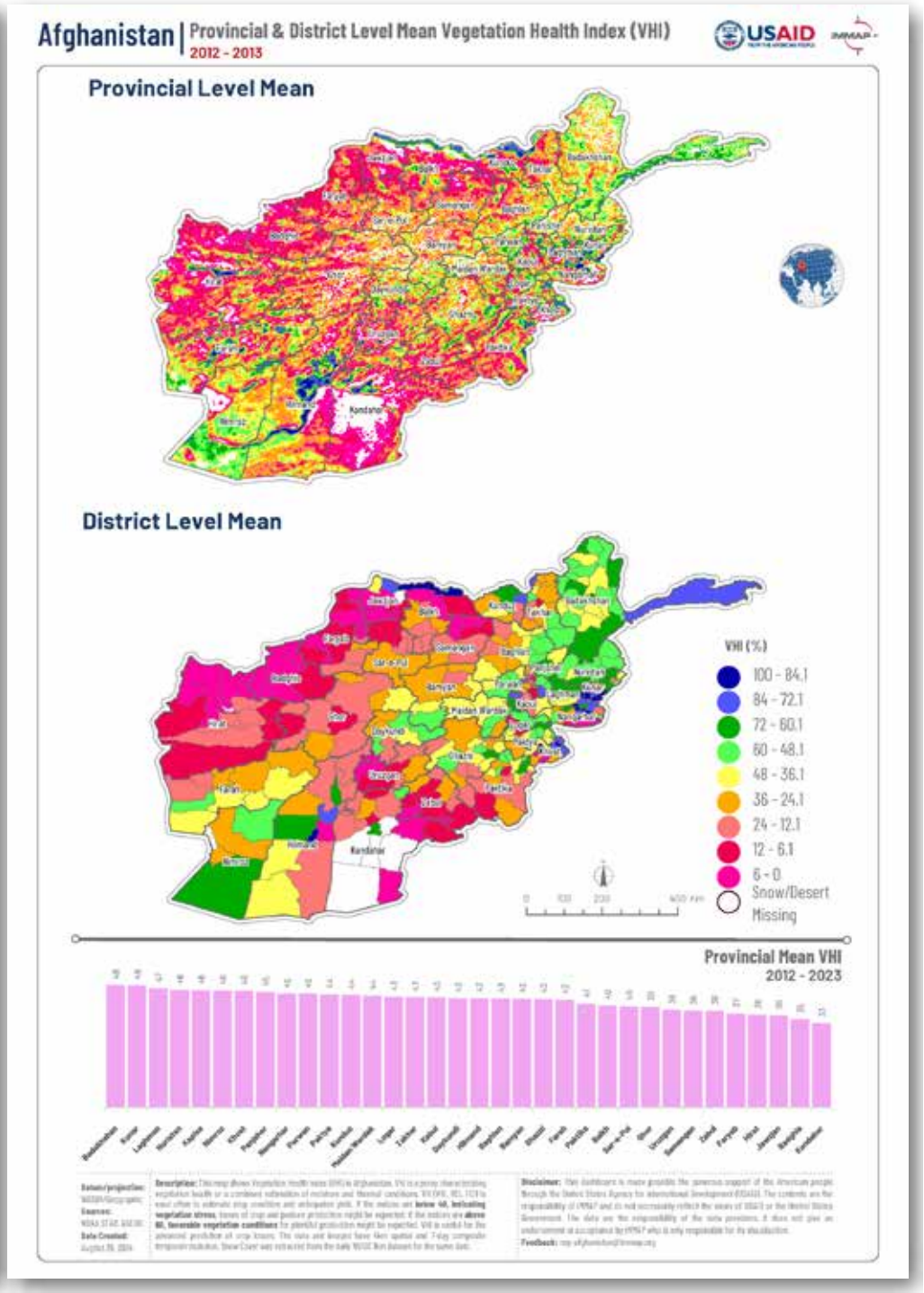
Mean Precipitation



Mean Normalized Difference Vegetation Index



Mean Vegetation Health Index



The compiled maps and accompanying data will be provided to interested partners or sectors for their reference and/or further analysis.

Thank you ....

Lawrence Aporto
IM Team Coordinator

IMMAP Afghanistan Country Office
Skype: lawrence.aporto
Mobile: +9379 0855293