



Design of Long-Term Vulnerability Reduction & Risk Preparation Investment Plan

Improving the Multi-Hazard Resilience of
Health Facilities in Iran (BEHTAB)

Design of Long-Term Vulnerability Reduction & Risk Preparation Investment Plan	
Version 1.0.0	
Modification date	29/11/2019

UN-Habitat Tehran Office
2019

Design of Long-Term Vulnerability Reduction & Risk Preparation Investment Plan

Presenting a set of priority investments that will put the country on the right trajectory to attain the desired results in relevant organizations as well as to improve the ability of the country to track progress on these results, is the main purpose of developing a long-term investment plan. It is to make the case for more effective and efficient investment in the long-term of improving the resilience of hospitals by structural and non-structural retrofit of hospitals and health facilities and improving factors relevant to the urban context.

The investment plan provides policymakers and planners at national and provincial levels with a systematic approach to improved planning, budgeting, monitoring, and evaluation in the use of funds for health facilities. Health facilities in this study include both hospitals and health houses at various scales. They also include those constructed by MoHME, by the Ministry of Roads and Urban Development (MRUD) for MoHME, or other actors including the private sector.

To this end, all accessible statistics of health facilities in the country were gathered and multifarious analyses were conducted to reach the most optimal methodology to prioritize them. In this regard, different aspects including the number of beds per city and province, hazard zonation, structural and non-structural vulnerability state, retrofitting cost, etc. were considered to achieve an inventory of health facilities. Finally, a case study was conducted to clarify the procedure implementation and analysis of the financial aspects along with the time and schedule for each stage.

The following pictures depict some statistics and achievements of long-term investment plan studies.

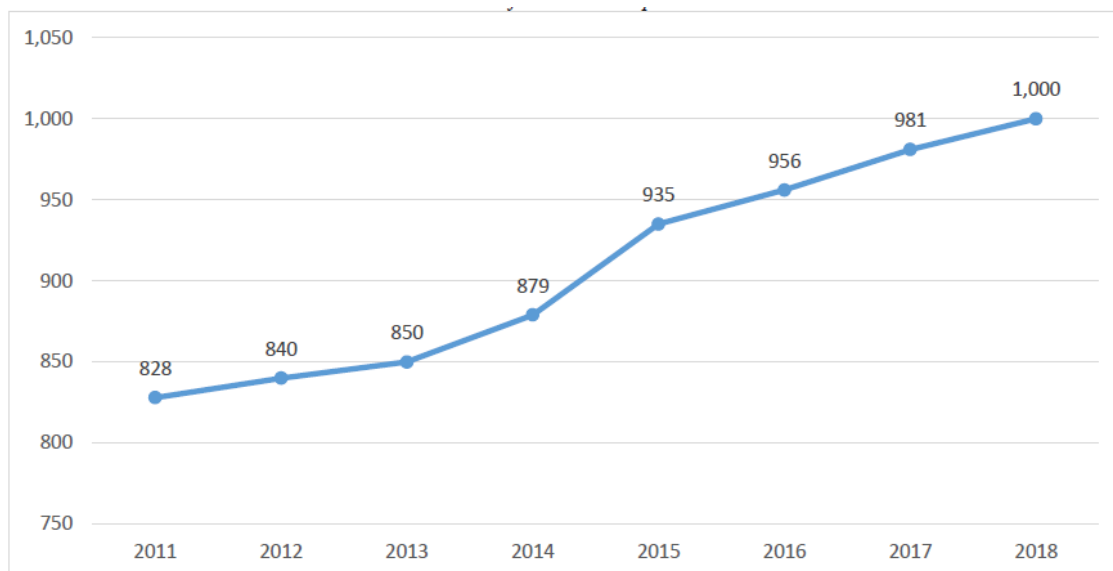


Figure 1 Total Number of Available Hospitals in IRI over time

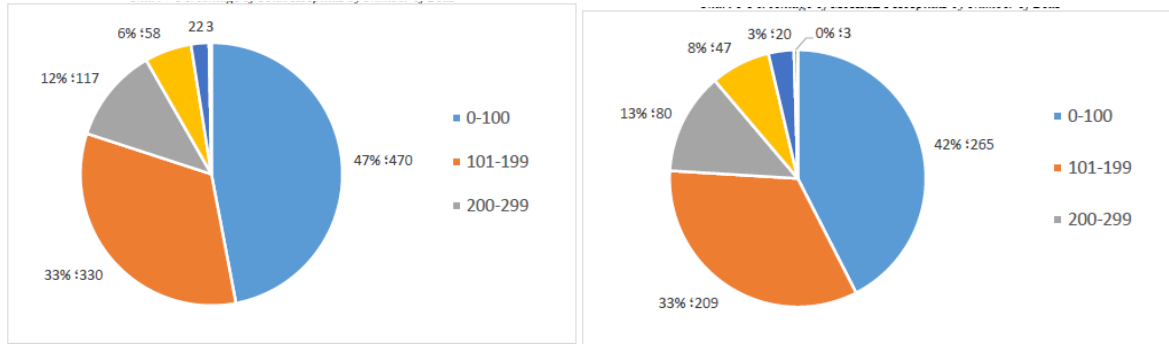


Figure 2 Percentage of Total Hospitals by Number of Beds- right MOHME hospitals and left all organization hospitals

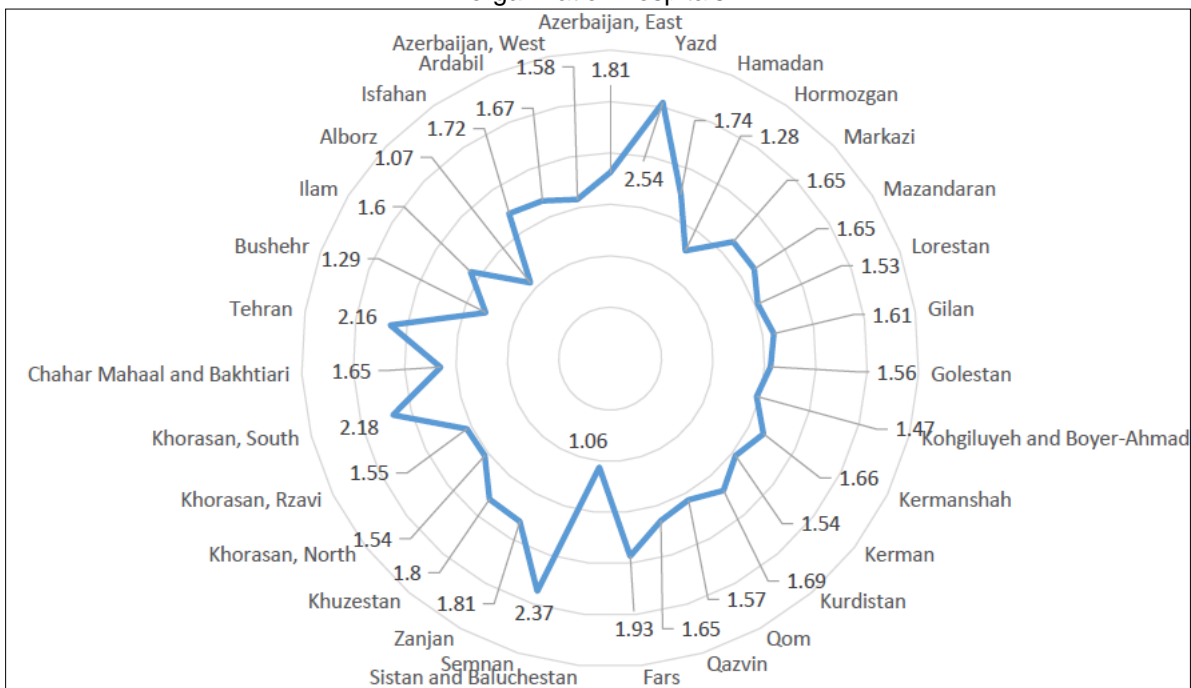


Figure 3 Available Hospital Beds (Per 1,000 People) in Iran provinces (2018)

Table 1 sensitivity analysis for a total cost (budget) by changing construction length/interval and inflation

Total cost (million Rials)	Construction length and interval for each phase	Annual inflation										
		10%	12%	14%	16%	18%	20%	22%	24%	26%	28%	30%
2	2	99,254	100,413	101,570	102,725	103,879	105,032	106,184	107,334	108,483	109,631	110,778
	4	106,872	109,703	112,581	115,509	118,486	121,513	124,589	127,716	130,893	134,121	137,400
	6	115,260	120,123	125,164	130,386	135,795	141,395	147,192	153,189	159,393	165,809	172,440
	8	124,508	131,836	139,578	147,754	156,385	165,492	175,095	185,219	195,886	207,120	218,946

Table 2 sensitivity analysis for total cost saving potential by changing human life value and the ratio of death to hospital beds

Total cost saving potential (billion Rials)	ratio of death to hospital beds in case of destruction								
	2	4	6	8	10	12	14	16	
Change in human life value	-90%	5,029	7,197	9,364	11,531	13,698	15,865	18,033	20,200
	-80%	7,197	11,531	15,865	20,200	24,534	28,869	33,203	37,537
	-70%	9,364	15,865	22,367	28,869	35,370	41,872	48,373	54,875
	-60%	11,531	20,200	28,869	37,537	46,206	54,875	63,544	72,213
	-50%	13,698	24,534	35,370	46,206	57,042	67,878	78,714	89,550
	-40%	15,865	28,869	41,872	54,875	67,878	80,881	93,885	106,888
	-30%	18,033	33,203	48,373	63,544	78,714	93,885	109,055	124,225
	-20%	20,200	37,537	54,875	72,213	89,550	106,888	124,225	141,563
	-10%	22,367	41,872	61,377	80,881	100,386	119,891	139,396	158,901
	0%	24,534	46,206	67,878	89,550	111,222	132,894	154,566	176,238
	10%	26,701	50,541	74,380	98,219	122,058	145,897	169,737	193,576
	20%	28,869	54,875	80,881	106,888	132,894	158,901	184,907	210,913
	30%	31,036	59,209	87,383	115,557	143,730	171,904	200,077	228,251
	40%	33,203	63,544	93,885	124,225	154,566	184,907	215,248	245,589
	50%	35,370	67,878	100,386	132,894	165,402	197,910	230,418	262,926
	60%	37,537	72,213	106,888	141,563	176,238	210,913	245,589	280,264
	70%	39,705	76,547	113,389	150,232	187,074	223,917	260,759	297,601
80%	41,872	80,881	119,891	158,901	197,910	236,920	275,929	314,939	
90%	44,039	85,216	126,393	167,569	208,746	249,923	291,100	332,277	