



Ghana Clean Water Initiative - Risk Management

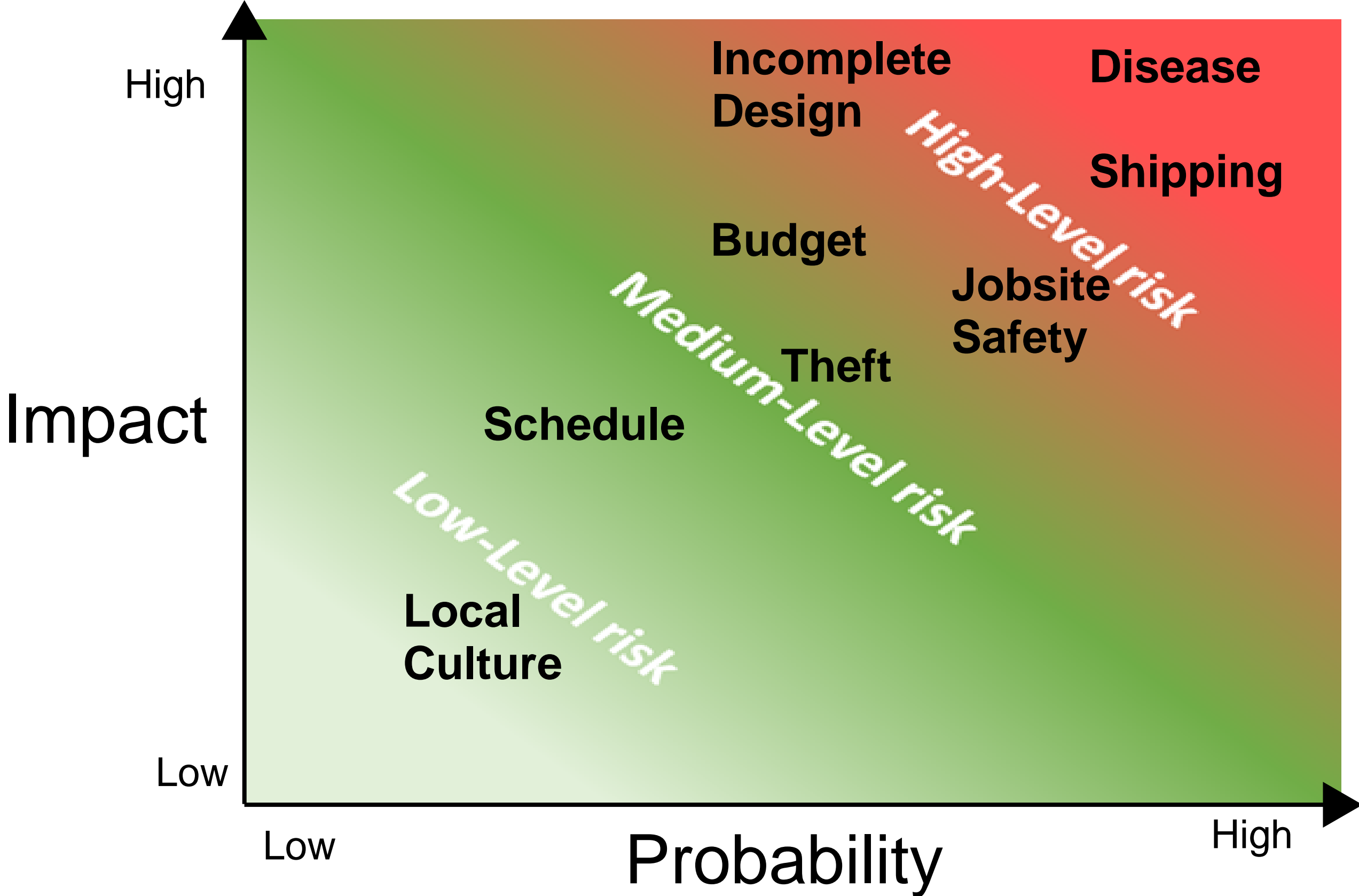
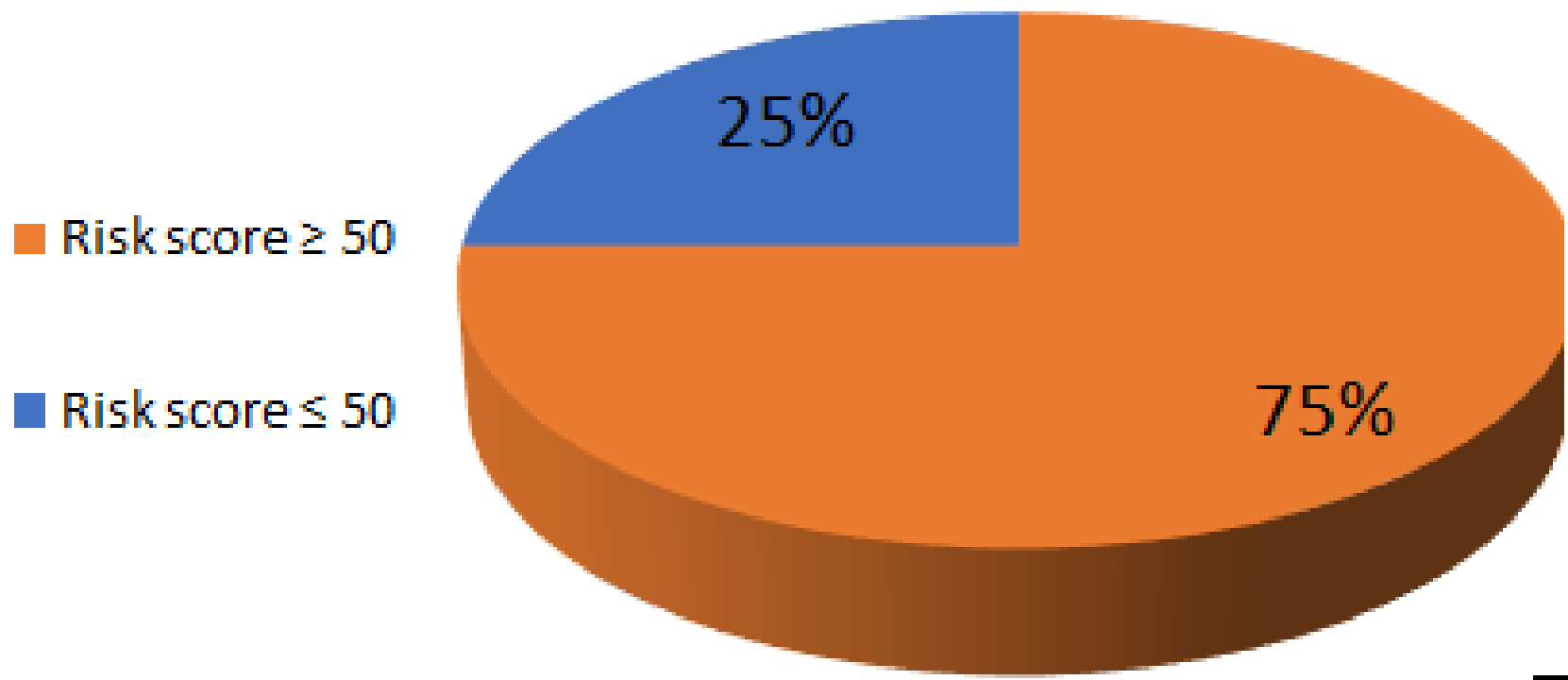


In August of 2019 several Cal Poly Students will be traveling to a remote fishing village located off of Lake Volta in Ghana. This project is being completed by Cal Poly's MCAA chapter alongside the NECA chapter. These students will be constructing a community center, a water filtration system, and ice making and refrigeration facilities. The project will rely heavily on solar power as there is no grid in the village the project is taking place in. This project inherently has many risks associated with it and needs a risk management plan to mitigate these risks. The following information is directly related to MCAs scope items which is the water filtration and pumping system.

Key words: Risk Management, Mechanical, Developing Country, Remote location

Vaccinations	
All Travelers	Measles
	Routine Vaccines
	Yellow Fever
Most Travelers	Hepatitis A
	Malaria
	Typhoid
Some Travelers	Cholorea
	Hepatitis B
	Meningitis (Meningococcal disease)
	Rabies

Pre-Mitigation



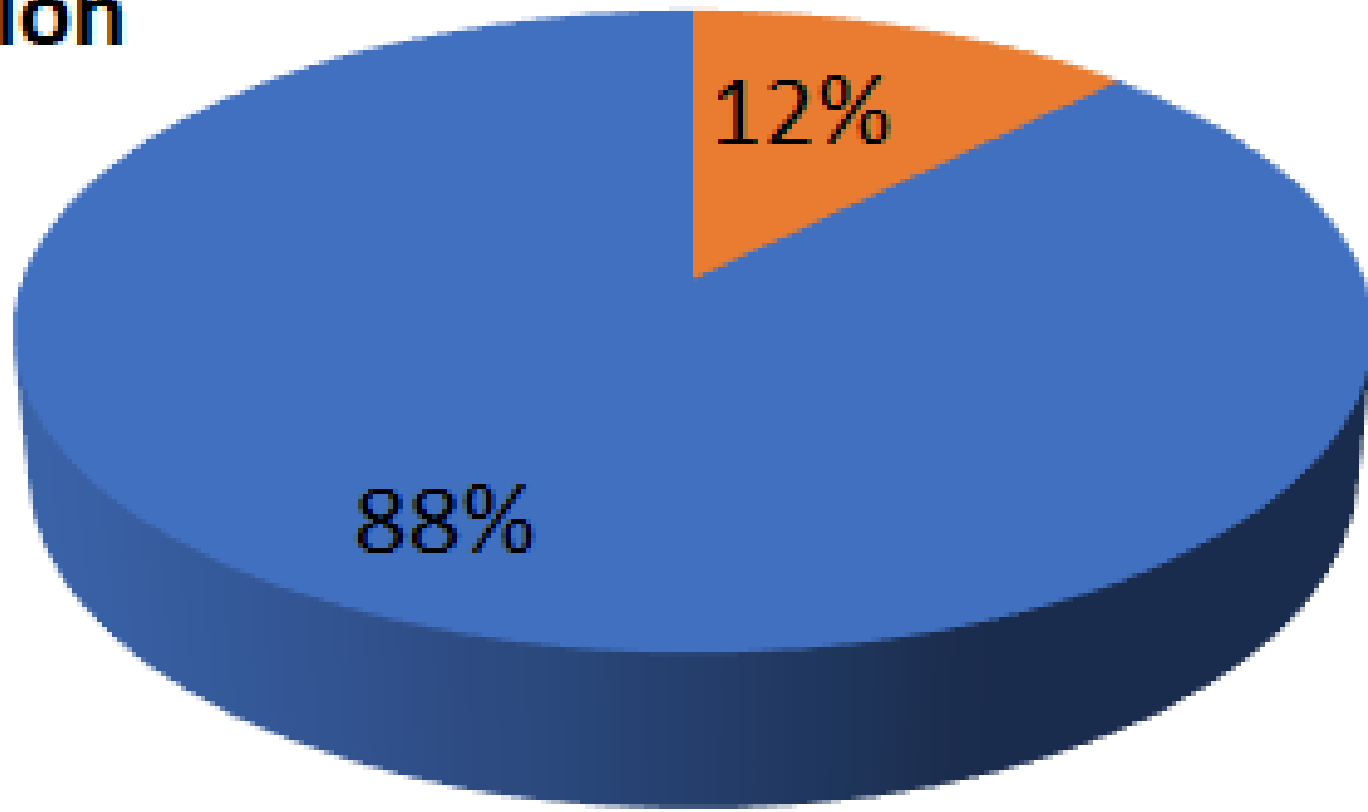
Risk	Probability (1-10)	Impact (1-10)	Risk Score (1-100)	Mitigation	Risk Score After Mitigation (1-100)
Disease	8	10	80	Ensure team has received all vaccinations prior to departure. Refer to Center for Disease Controls website for necessary vaccinations.	35
Shipping & Import	8	10	80	Procure items in Ghana, this will limit import duties, as well as prevent delays. Ship un-essential tools and materials that can arrive late.	30
Theft	7	9	63	Ensure central location in village for expensive/valuable items. Locate pump far offshore and fully submerged. Bury electric conductors as to not make visible.	50
Local Culture	6	2	12	Have Dr. Heston go over customs and traditions with team. Perform research on what to expect from locals.	5
Incomplete Design	6	10	60	Review all specifications for equipment and materials and ensure compatibility. Have competent person review design to ensure system feasibility. Consult experienced personnel that have dealt with similar systems	35
Going Over Budget	5	10	50	Ensure budget is well above estimate. While transferring funds to local currency utilize best exchange rate and lowest transfer cost. Purchase materials locally; these will have lower cost than in U.S.A as well as no import duty.	30
Jobsite Safety	7	9	63	Utilize Job Hazard Analysis forms. Review proper construction methods before performing a task. Utilize proper PPE. Supervise locals' workers and advise/prohibit dangerous tasks.	20
Tight Schedule	5	8	40	Ensure plenty of time on jobsite to perform required tasks. Utilize local labor to help with construction.	25

Activity Hazard Analysis										
Whos Performing Work:										
Tool List:										
Likelihood	Probability									
Severity	Frequent	Likely	Occasional	Seldom	Unlikely					
Catistrophic	E	E	H	M	M					
Mariginal	E	H	M	L	L					
Negligable	H	M	L	L	L					
Task	Hazards		Prevention							
Signatures:										
Supervisor:										



Post-Mitigation

■ Risk Score ≥ 50
■ Risk Score ≤ 50



*Low score means limited risk

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