



# ARISE Case Studies in Disaster Risk Management



**SM City Marikina Mall**  
 SM City Marikina is an elevated mall built on top of stilts. It is a 6-hectare mall property located within the Marikina River Watershed, a known flood-prone area. In 1977, the World Bank identified this zone as high-risk, and should be prepared for floods and earthquakes.

RISK	ACTION	IMPACT	OUTPUT
<p>Urban planners regularly study annual flood cycles of areas for possible development. SM Prime Holdings however, went beyond this, as we considered the longer term flood cycles of the Marikina Watershed when we designed the mall. Without consideration for these flood cycles, a significant amount of damage could have affected its properties, affiliates, mall tenants, jobs, and even lives could have been at stake.</p> <p>Typhoon Ketsana, known in the Philippines as Tropical Storm Ondoy, was the second most devastating tropical cyclone in the 2009 Pacific typhoon season, causing \$1.09 billion worth of damages and 747 fatalities. Typhoon Ondoy affected over 4.8 million people across the Philippines as it submerged nearly half of Marikina City.</p>	<p>SM Prime built the SM City Marikina mall 20 meters farther than the suggested 90 meter distance from the Marikina River centerline. This distance helped reduce the risks of damaging the mall in extreme floods. The main roads surrounding the mall layout at the natural ground level was considered in the design. Thus, the lower parking level was constructed without any wall enclosure and the upper ground floor level was built at an elevation of 20.5M more than the maximum flood recorded.</p> <p>These features allowed water to flow freely through the parking structure while the mall area rests on the third floor lifted by the supportive stilts during extreme floods.</p>	<p>SM Marikina’s resiliency saved almost 1 billion pesos in terms of losses from business sales alone. This proved that costs to build a disaster resilient mall were more than recouped in avoided losses from severe property damage.</p> <p>The employees of the mall including its agencies and tenants were able to report for work right after the typhoon. This proved the additional 15% in costs to build a disaster resilient mall were more than recouped in avoided losses.</p>	<p>SM City Marikina managed to prevent severe damage that could have affected the lives and business of more than 1,400 mall employees, affiliates, and agency personnel, 262 merchandise suppliers, as well as regular customers.</p>





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### Lessons Learned

Disaster preparedness and proper planning are essential to achieving reduced risks brought about by natural and man-made calamities. Investing in disaster resilient buildings & properties can greatly help avert potential loss of life, business and reputation. SM Prime saw the opportunity of doing business while considering the risk even if it cost 15% more in making our mall resilient. After the devastation, SM Prime gained more trust with its stakeholders because we anticipated the risk and took action. In the end we rendered a sustainable competitive advantage.

### BUSINESS CASE

SM Marikina is located near the Marikina river, a site highly prone to disastrous flooding. The Disaster Resilient design of the SM Marikina structure is a proactive way of adapting to what might otherwise be an undesirable location for the mall. It significantly exceeds the regulations deemed fit to be mandated by government to avoid damages and casualties. This can preempt automatic preparedness for fortuitous events in the coming future. In the long run, it can set the standard for proactivity to be when considering factors before beginning construction.

### REPLICATION OPPORTUNITIES

All players in the growing retail and development industries are similarly responsible for proper research and planning in anticipation of environmental needs in the areas they choose to develop or expand. Within SM, there are a number of malls that are in locations prone to flooding such as SM Masingag and SM Cabanatuan. Depending on the need and feasibility in respective areas, the planning and design that was applied to SM Marikina can be executed or escalated in other disaster prone areas, including those that might be susceptible to earthquakes, or calamities other than typhoons and floods.

### How does the project support the implementation of the Sendai Framework targets?

1	<i>Reduce disaster mortality by 2030</i>		<p>Had it not been for the preemptive circumstances under which the mall was constructed, thousands would have been killed during typhoon Ondoy alone – not to mention almost P1 billion in sales losses during the period it would take to repair damages. The proper planning also prevented significant structural damage to the mall. Automated Weather Stations (AWS) available in all SM Supermalls are also properly utilized for the dissemination of cautionary information regarding weather disturbances to initiate preparedness.</p>
2	<i>Reduce number of affected people by 2030</i>	X	
3	<i>Reduce economic loss by 2030</i>	X	
4	<i>Reduce infrastructure damage and disruption of services by 2030</i>	X	
5	<i>Increase countries with DRR national/ local strategies by 2020</i>		
6	<i>Enhance international cooperation to developing countries</i>		
7	<i>Increase the availability of and access to EWS* and DR information to people by 2030</i>	X	

### How does the project contribute to the ARISE Themes?

1	<i>Disaster Risk Management Strategies</i>	X	<p>Proper planning of mall design and structure serves as an effective strategy for damage control in the face of natural calamities. SM Marikina can serve as a point of reference for preventing extensive costs and substantial casualties by using proper planning and consideration, as well as training and exercises. Initial costs are but necessary investments in avoiding more significantly substantial ones later on.</p>
2	<i>Investment metrics</i>	X	
3	<i>Benchmarking and Standards</i>	X	
4	<i>Education and Training</i>	X	
5	<i>Legal and Regulatory</i>		
6	<i>Urban Risk Reduction and Resilience</i>	X	
7	<i>Insurance</i>	X	

### For More Information



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