

NISSAN: RECOVERING SUPPLY CHAIN OPERATIONS¹

Shikha Aggarwal and Manoj Kumar Srivastava wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

This publication may not be transmitted, photocopied, digitized or otherwise reproduced in any form or by any means without the permission of the copyright holder. Reproduction of this material is not covered under authorization by any reproduction rights organization. To order copies or request permission to reproduce materials, contact Ivey Publishing, Ivey Business School, Western University, London, Ontario, Canada, N6G 0N1; (t) 519.661.3208; (e) cases@ivey.ca; www.iveycases.com.

Copyright © 2016, Management Development Institute Gurgaon and Richard Ivey School of Business Foundation Version: 2016-05-30

The year 2011 was tough for the Japanese automotive industry. A 9.0-magnitude earthquake and tsunami followed by a nuclear crisis had ripped the country. The collective economic cost of the “3/11 disaster” as estimated by the World Bank totalled around US\$235 billion.² In the automobile sector, production was immediately stopped.³ In 2010, Japanese automakers had manufactured around 8.3 million passenger cars in Japan.⁴ IHS Global Insight, an international economic and financial consulting firm, forecasted that as a result of the disaster, cumulative production for Japanese automakers in 2011 would drop by around 2.2 million units. Automakers Toyota, Nissan, Honda, and Suzuki were adversely affected and made their respective recovery efforts. Of the top automotive firms, Nissan was acknowledged by analysts and industry experts for the company’s recovery and resilience strategy.⁵

The catastrophe took place in March 2011. Nissan lost 17 family and five staff members. More than 50 of its dealers⁶ and 40 of its component suppliers were damaged. Two of Nissan’s plants—the Tochigi engine and vehicle assembly plant and the Iwaki engine plant—were severely damaged.⁷ Each day of lost production was costing Nissan \$25 million in profits.⁸ But, surprisingly, the Tochigi engine and vehicle assembly plant was back on line in April, and the Iwaki engine plant was fully recovered with production back to pre-disaster levels by mid-May.⁹ “Nissan was one of the companies, which have responded the fastest, and in the most efficient way to what happened after the earthquake,” Carlos Ghosn, the chief executive officer (CEO) of Nissan, exclaimed.¹⁰

NISSAN AND THE JAPANESE AUTOMOBILE INDUSTRY

Nissan Motor Company Ltd., based out of Yokohama, Japan, was the second largest automotive company in the country. It employed approximately 248,000 people globally. In 2010, its annual sales exceeded 4.1 million vehicles. Its annual revenue in that year was around \$102.37 billion (JP¥8.77 trillion).¹¹ Nissan’s Chairman and CEO was Carlos Ghosn, a French-Lebanese-Brazilian, and Nissan’s board was comprised of members of different nationalities. This was different from the corporate structure of other Japanese automakers whose board members were exclusively Japanese. Colin Dodge was the most senior non-Japanese member on the board. He took over as Nissan’s Chief Recovery Officer in Japan. This post was unique, not found at other automakers.¹²

Nissan delivered a wide range of models—a total of 64—under Nissan and Infiniti brands. It exhibited a strong commitment to developing exciting and innovative products. In 2011, Nissan earned several international awards such as *European Car of the Year* and *World Car of the Year*.¹³ Nissan used common parts on a global scale and standard parts worldwide. This practice resulted in low-cost manufacturing and gave the company an advantage in dealing with the crisis situation.

The automotive sector was one of the core industrial sectors in Japan's economy. In 2009, automotive shipments alone accounted for 15.3 per cent of the total value of manufacturing shipments in Japan. The value of the automotive shipments in that year amounted to \$472.7 Billion (JP¥40.5 trillion).¹⁴ Japan was the second largest vehicle producing country after China.

Because Japan was home to many innovative technologies in the automotive sector, suppliers got “substantial and growing shares of the global market.”¹⁵ A motor vehicle consists of more than 15,000 parts; lack of an important component can stop production or impede completion of vehicles, and result in a slowdown or total stoppage of assembly lines.¹⁶

IMPACT OF 3/11 ON THE JAPANESE AUTOMOBILE INDUSTRY

The triple disaster in Japan disrupted both domestic and global supply chains. The most affected industries were electronics and automobiles, both well-represented in Japan.¹⁷ Due to fuel shortages across the country and power outages in the affected area of Tokyo, production and distribution were severely impacted, and staff members were unable to reach their workplaces. Plant shutdowns in Japan disrupted the supply of products—from semiconductors to automobiles—to manufacturers around the world.¹⁸

The foremost effect of the disaster, however, was suffered by Japanese automakers. Their assembly plants were shut down for weeks. They assessed that Tier 1, Tier 2, and Tier 3 suppliers had been impacted.¹⁹ Supply chains of Japanese automakers were believed to be *keiretsu*—interlocked, with products procured from Tier 1 suppliers being manufactured with parts procured from Tiers 2 and 3 suppliers. “We thought it was pyramid-shaped, but it turned out to be barrel-shaped,” a Toyota official remarked post-disaster, noting few critical suppliers at the base of the network.²⁰

Many electronic component suppliers that supplied critical parts to automobile companies around the world were unable to meet commitments. They soon realized that it would take them months to recover completely.²¹ For example, Renesas Electronics, which provided 40 per cent of the global market for microcontrollers for automobiles, was badly hit by the disaster and took more than a couple of months to restart production. Renesas Electronics was the sole supplier of chips to all Japanese automakers.²²

Until March 26, Toyota had suspended operations in 12 of its assembly plants, and estimated a loss of around 140,000 vehicles.²³ It stopped production in its U.S.-based assembly plants because of the difficulties with shipping parts out of Japan. Similarly, Honda suspended production immediately after the earthquake and continued the suspension for an additional two weeks. One-fifth of its Tier 1 suppliers had been affected by the earthquake. The company announced that the suppliers would take more than a week to recover operations.²⁴

Nissan lost 1,300 Infiniti and 1,000 Nissan cars to the tsunami. All 2,300 vehicles were ready and waiting to be loaded and transported to the United States.²⁵ The company immediately closed five plants: the Iwaki Plant in Iwaki City, the Tochigi Plant in Kawachi County, the Yokohama and Oppama Plants in Yokohama City, and the Zama Operations Center in Zama City.²⁶

Ghosn told Bloomberg News:

This is serious and it's still difficult to evaluate. You have the earthquake, you have the tsunami, rolling blackouts, and fuel shortages hitting at the same time, and they aren't only hitting the car manufacturers, but also the suppliers and the dealers.²⁷

CRISIS MANAGEMENT AT NISSAN

The "Great East Japan" earthquake struck at 2:46 in the afternoon. Within 15 minutes, Nissan had set up its Global Disaster Control Headquarters (GDCH) in its head office in Yokohama, where it could update information on disaster management, work for employee safety, and ensure business continuity. The crisis management committee was led by Toshiyuki Shiga, the chief operating officer.²⁸ The committee oversaw all recovery activities and supervised operations in the country as well as abroad.²⁹ Ghosn reported in an interview with Reuters, "You need to establish a clear order of importance and a diagnosis of the company, or the country. This is absolutely essential, because after this you are going to act and when you act you need to do it fast. People need to be aligned and share your vision so you can move in the same direction."³⁰

In addition to quick decision making after the occurrence, the company made use of its earlier developed capabilities to make a speedy recovery. Since 2003, Nissan had been applying seismic retrofitting and requirements in its plants and facilities located in the earthquake prone areas. Also, evacuation centres and routes had been prepared well in advance.³¹

Shiga explained Nissan's approach:

After these type[s] of disasters occur, the company should know that employees' safety is first. We should also know about the safety of the suppliers, dealers, or our affiliated companies and then, how to restore operations. This process [aims] to prioritize and to make a decision—through this type of training drills, we can easily understand the priority and not panic.³²

First and foremost, the company confirmed the safety and status of its employees, suppliers, and vendors. The safety confirmation system that was earlier based on email was shifted to web access. Then the company started recovery operations at all business locations and plants. Because they had practiced drills and simulations every year, Nissan was able to conduct recovery operations in an expedited and focused manner. The drills and simulations helped Nissan forecast and respond to every eventuality that followed the natural calamity.³³

Nissan Senior Vice-President Hitoshi Kawaguchi acknowledged the importance of regular drills:

This company has been doing this every year, for the last five or six years. Once you prepare yourself for all kinds of disasters then you don't panic, and I think that's quite important for us to be well-trained for natural disasters like a great earthquake or anything which could damage the company's operations.³⁴

Within a few days, Ghosn was shown on television, with a film crew behind him, surveying the impact of the disaster at the damaged plant in Iwaki. Talking with reporters, Ghosn was clear and decisive in his assessment about what had happened, and what Nissan's future action plans were. He was quick and precise in communicating when the engine-making plant would be back in operation. This kind of openness and clarity was rare in the Japanese corporate arena.³⁵

Chris Keefe, Yokohama-based spokesperson for Nissan, commented that Nissan was swift in gathering its key executives to assess and analyze the situation, and to quickly sketch out possible solutions. He drew a vivid picture of the future course of action and identified the top-level executives in charge of the recovery plan. He also added that one of the major strengths of the company that had enabled it to overcome the crisis was its ability to work together in a quick and focused manner.³⁶ Hundreds of employees from other sites were called upon to assist in recovery of the damaged plants. The employees worked together in a cross-functional and cross-regional manner.

Frequent power outages in the area were badly affecting production. The company considered night time operations, in-house generation of electricity, and a change in workweek to overcome the effects of power shortages.³⁷ In April, Nissan informed its dealers that it would mainly manufacture only the best-selling models while the parts shortages continued at the plants. Rumours suggest that just before the earthquake, the company had ordered parts in bulk, which, if true, would have also contributed to Nissan's recovery.³⁸

Nissan prioritized delivery of vehicles to the U.S. and Chinese markets.³⁹ The company was able to deliver cars when their competitors could not, which resulted in better sales for Nissan.⁴⁰ Still, Ghosn acknowledged that Nissan would initially face a "significant" loss of market share globally but expected to recoup losses in the latter half of the financial year.⁴¹

In the aftermath of the disaster and its impact, the company realized the need to strengthen its supply chain.⁴² To prevent similar disruptions and damages in future, Nissan planned to ask its Tier 2 and 3 suppliers to use alternate sourcing for their parts, which they had not implemented at that time. In that way, the suppliers could manufacture the same component in different factories across the country and ensure an uninterrupted supply of component parts to the plants, even during disruptions. Shiga claimed that if Nissan adopted what he called a "supply risk management chain" that incorporated principles of risk management, Nissan's power of *monozukuri*—process engineering activities and craftsmanship in manufacturing—would be strengthened.

Over the following months, the crisis management committee continued to tackle production recovery issues whenever they occurred.⁴³ Nissan later discovered that they had underestimated the damage that could be caused by a disaster. They re-evaluated and modified their disaster strategy. They prepared new evacuation centres and routes and stockpiled food reserves and other resources wherever needed.⁴⁴ Toward the end of 2011, Ghosn mentioned in a speech, "There's going to be another crisis. We don't know what kind of crisis, where it is going to hit us, and when it is going to hit us, but every time there is a crisis we are going to learn from it."⁴⁵

EXHIBIT 1: EFFECT OF THE 3/11 DISASTER ON NISSAN'S PRODUCTION, SALES, AND EXPORTS

Change from Previous Year (%)			
Category	March 2011	April 2011	May 2011
Production in Japan	-52.4	-48.7	0.8
Sales in Japan	-35.7	-37.5	-12.9
Exports	-12.5	-72.0	-5.6

Key Financial Figures (in no. of units)			
Category	March 2011	April 2011	May 2011
Production in Japan	47,590	44,193	80,036
Sales in Japan	60,584	24,068	37,981
Exports	41,746	14,642	45,321

Source: "Nissan Production, Sales, Export Results for May 2011," press release, June 28, 2011, accessed August 18, 2015, www.nissan-global.com/EN/NEWS/2011/_STORY/110628-01-e.html.

EXHIBIT 2: SUMMARY OF REPORTS ISSUED BY THE COMPANY POST- DISASTER

Date	Regarding Plants	Regarding Suppliers/Dealerships
March 11, 2011	Suspended operations, evacuations begun	Assessments of damage yet to be conducted; Few dealerships reported damage, others to be confirmed yet
March 12, 2011	Damage to 2300 vehicles reported	Discussions regarding part damages going on with suppliers
March 14, 2011	Suspension of operations continue	<No report issued regarding suppliers>
March 16, 2011	Most resume production, will continue while inventory of supplies last	Difficulty in getting part supplies
March 25, 2011	Repairs and infrastructure re-establishment continuing	Will support suppliers based on requests received
March 30, 2011	Still recovering, production based on earlier inventory only	Awaiting recovery of suppliers for parts delivery
April 8, 2011	All plants will resume operations by mid-April	Supporting suppliers to restore quickly

Source: Summarized from News Releases January–March 2011, Nissan, accessed August 18, 2015, www.nissan-global.com/EN/NEWS/2011/01_03.html.

ENDNOTES

- ¹ This case has been written on the basis of published sources only. Consequently, the interpretation and perspectives presented in this case are not necessarily those of Nissan Motor Company Ltd., or any of its employees.
- ² Tomoko A. Hosaka, "Japan Disaster Likely to Be World's Costliest," *Washington Post*, March 23, 2011, accessed August 18, 2015, www.washingtonpost.com/wp-dyn/content/article/2011/03/23/AR2011032300579.html. All currency amounts are in US\$ unless otherwise specified; US\$1=JP¥81.12 on December 31, 2010.
- ³ Peter Nunn, "Why Nissan's Disaster Recovery Bested Rivals," *Edmunds Auto Observer*, December 5, 2011, accessed August 18, 2015, www.edmunds.com/autoobserver-archive/2011/12/why-nissans-disaster-recovery-bested-rivals.html.
- ⁴ Bill Canis, *The Motor Vehicle Supply Chain: Effects of the Japanese Earthquake and Tsunami* (Washington: Congressional Research Service, report no. R41831, May 23, 2011), accessed August 18, 2015, www.fas.org/sgp/crs/misc/R41831.pdf.
- ⁵ Nissan, "Nissan Undertakes Yearly Emergency Drill Ahead of March 11 Anniversary," press release, March 5, 2012, accessed August 18, 2015, <http://nissannews.com/en-US/nissan/usa/channels/Japan-Earthquake-Updates/releases/nissan-undertakes-yearly-emergency-drill-ahead-of-march-11-anniversary>.
- ⁶ Nissan, "Nissan Recovery Stories," press release, July 1, 2011, accessed August 18, 2015, <http://nissannews.com/en-US/nissan/usa/channels/Japan-Earthquake-Updates/releases/893f9bd6-480c-4efd-b3f4-2c06f34b84ac>.
- ⁷ *Ibid.*
- ⁸ David Zeiler, "Supply Chain Disruptions from Japan Disasters Hit Auto, Electronics Industries," *Money Morning*, accessed August 18, 2015, <http://moneymorning.com/2011/03/24/supply-chain-disruptions-from-japan-disasters-hit-auto-electronics-industries>.
- ⁹ Peter Nunn, *op. cit.*
- ¹⁰ Nissan, "Nissan CEO: Honmoku is 'The Benchmark'," press release, July 18, 2011, accessed August 18, 2015, <http://nissannews.com/en-US/nissan/usa/channels/Japan-Earthquake-Updates/releases/c17b858d-7b46-4cb8-bb2a-14e8c253889c>.
- ¹¹ Nissan, "Nissan to Provide NV200 Vanettes to Earthquake-Affected Areas in Japan," press release, August 2, 2011, accessed August 18, 2015, <http://nissannews.com/en-US/nissan/usa/channels/Japan-Earthquake-Updates/releases/3a0dfe13-2c3b-40a4-aa0d-9242c61d1355>.
- ¹² Peter Nunn, *op. cit.*
- ¹³ Nissan, "Nissan to Provide NV200 Vanettes to Earthquake-Affected Areas in Japan," *op. cit.*
- ¹⁴ *The Motor Industry of Japan 2011* (Tokyo: Japan Automobile Manufacturers Association, May 2011), accessed August 18, 2015, <http://jama.wpengine.com/wp-content/uploads/2013/12/The-Motor-Industry-of-Japan-2011-Publications-Industry-Report-2011.pdf>.
- ¹⁵ Bill Canis, *op. cit.*
- ¹⁶ Gavin Blair, "Cars After Japan's Quake: Toyota, Nissan, and Honda Plan to Restart Production," *Christian Science Monitor*, April 5, 2011, accessed August 18, 2015, www.csmonitor.com/World/Asia-Pacific/2011/0405/Cars-after-Japan-s-quake-Toyota-Nissan-and-Honda-plan-to-restart-production.
- ¹⁷ David Zeiler, *op. cit.*
- ¹⁸ "Factbox: Japan Quake Impact on Auto, Electronics Makers," *Reuters U.S.*, March 23, 2011, accessed August 18, 2015, www.reuters.com/article/2011/03/23/us-japan-companies-idUSTRE72M26N20110323.
- ¹⁹ Bill Canis, *op. cit.*
- ²⁰ Kyodo, "Manufacturers Expect Lasting Quake Impact," *Japan Times*, May 20, 2011, accessed August 18, 2015, <http://japantimes.co.jp/news/2011/05/20/news/manufacturers-expect-lasting-quake-impact>.
- ²¹ Bill Canis, *op. cit.*
- ²² Kyodo, *op. cit.*
- ²³ Carlos Barria, "Supply Chain Disruptions Force More Delays in Japan," *Reuters U.S.*, March 22, 2011, accessed August 18, 2015, www.reuters.com/article/2011/03/23/us-japan-supplychain-idUSTRE72M21J20110323.
- ²⁴ David Zeiler, *op. cit.*
- ²⁵ Daniel Patrascu, "Nissan Lost 2,300 Brand New Cars to Tsunami," *Autoevolution*, March 14, 2011, accessed August 18, 2015, www.autoevolution.com/news/nissan-lost-2300-brand-new-cars-to-tsunami-32777.html.
- ²⁶ *Ibid.*
- ²⁷ David Zeiler, *op. cit.*
- ²⁸ Nissan, "Nissan Undertakes Yearly Emergency Drill Ahead of March 11 Anniversary," *op. cit.*
- ²⁹ "Disaster Response at Nissan," *Nissan Sustainability Report 2012* (Yokohama: Nissan, August 2012), 9, accessed August 18, 2015, http://www.nissan-global.com/EN/DOCUMENT/PDF/SR/2012/SR12_E_P008.pdf.
- ³⁰ "Thomson Reuters Newsmaker — Rebuilding Japan" (blog), *Reuters U.S.*, June 20–22, 2016, accessed August 18, 2015, http://live.reuters.com/Event/Thomson_Reuters_Newsmaker_-_Rebuilding_Japan.
- ³¹ "Disaster Response at Nissan," *op. cit.*
- ³² Nissan, "Nissan Undertakes Yearly Emergency Drill Ahead of March 11 Anniversary," *op. cit.*
- ³³ "Disaster Response at Nissan," *op. cit.*
- ³⁴ Nissan, "Nissan Undertakes Yearly Emergency Drill Ahead of March 11 Anniversary," *op. cit.*
- ³⁵ Peter Nunn, *op. cit.*
- ³⁶ Peter Nunn, *op. cit.*
- ³⁷ Makiko Kitamura and Yuki Hagiwara, "Nissan Says Fewer than 20 Suppliers Are in Critical State," May 12, 2011, accessed October 28, 2015, www.bloomberg.com/news/articles/2011-05-12/nissan-beats-estimates-after-earthquake.
- ³⁸ , Peter Nunn, "Why Nissan's Disaster Recovery Bested Rivals," *Edmunds Auto Observer*, December 5, 2011, accessed August 18, 2015, www.edmunds.com/autoobserver-archive/2011/12/why-nissans-disaster-recovery-bested-rivals.html. Accessed August 18, 2015
- ³⁹ Bill Canis, *op. cit.*
- ⁴⁰ Peter Nunn, *op. cit.*
- ⁴¹ Makiko Kitamura and Yuki Hagiwara, *op. cit.*
- ⁴² Ken Miyazaki, "Nissan to Strengthen Parts Supply Chain Following Quake," March 27, 2012, accessed October 28, 2015, <http://ajw.asahi.com/article/0311disaster/recovery/AJ201203270075>.
- ⁴³ Nissan, "Nissan Undertakes Yearly Emergency Drill Ahead of March 11 Anniversary," *op. cit.*
- ⁴⁴ "Disaster Response at Nissan," *op. cit.*
- ⁴⁵ Bill Powell, "The Global Supply Chain: So Very Fragile," *Fortune*, accessed May 30, 2016, <http://fortune.com/2011/12/12/the-global-supply-chain-so-very-fragile/>.