Exclusion from investment portfolios

2 December 2013

Summary

KLP has decided to exclude Tokyo Electric Power Company ('TEPCO') from investments by KLP and the KLP Mutual funds ('KLP').

On 11 March 2011 the TEPCO-owned Fukushima Dai-ichi nuclear power plant was hit by an earthquake and subsequent tsunami. Notwithstanding that TEPCO and company management did all they could to prevent the catastrophic consequences of the accident, and that they are deemed to have acted entirely correctly during the emergency situation, the consequences of the tsunami and the accident could have been lessened, and possibly avoided, had they previously paid greater attention to the issue of risk. Furthermore, the company has, after the accident, failed to gain control of the situation or prevent further emissions. There is still a major risk of further discharge of radioactive material from the nuclear power plant. KLP therefore considers that its investments in TEPCO represent a potential for complicity in severe environmental damage, and as such contravene KLP's guidelines on responsible investment.

1. Introduction

TEPCO is a Japanese company that supplies electricity to the Tokyo area. TEPCO's electricity derives from several energy sources, with nuclear power accounting for around 40 per cent. The company owns 17 nuclear power reactors, divided between three nuclear power plants: Fukushima Dai-ichi, Fukushima Daini and Kashiwazaki Kariwa. It was the first of these, situated 250 km north of Tokyo, that suffered the 2011 accident. The nuclear power plant is owned and operated by TEPCO. The accident has devastated the company, and continues to significantly affect its operations and future.[1] TEPCO's other reactors remain out of operation, pending the authorities' permission to start up again.[2]

Image 1: The Fukushima Dai-ichi nuclear power plant with six reactors. *Source: TEPCO*

As at 18 October 2013, KLP had investments worth some NOK 8.2 million (255,300 shares) in TEPCO.

[1] TEPCO's website, URL: http://www.tepco.co.jp/en/challenge/energy/nuclear/plants-e.html
[2] Japan Times (2013)

1.1 Assessment of severe environmental damage

KLP has assessed whether TEPCO is contributing to or responsible for severe environmental damage, which is one of the criteria in KLP's responsible investment guidelines. With respect to severe environmental damage, the guidelines refer to:

- *UN Global Compact:* Principle 7 to the effect that businesses should support a precautionary approach to environmental challenges, and Principle 8 to the effect that businesses should undertake initiatives to promote greater environmental responsibility.
- *OECD's Guidelines for Multinational Enterprises;* Chapter VI Environment.
- *Norwegian Government Pension Fund – Global:* Guidelines for observation and exclusion of companies, Section 2 (3), which also covers severe environmental damage.

KLP excludes companies that contribute to severe and/or systematic violations of these guidelines. In assessing what constitutes severe and/or systematic, KLP has, in line with the Norwegian Government Pension Fund – Global's Council on Ethics[3], given weight to whether:

- the damage is extensive,
- the damage will have irreversible or long-term consequences,
- the damage has substantial negative consequences for human life and health,
- the damage is the result of violations of national legislation or international norms,
- the company has failed to act to prevent the damage,
- the company has, to a sufficient degree, implemented measures to ameliorate the damage,
- it is likely that the company's practices will continue.

1.2 Sources

The recommendation rests on publicly available information published by the company, and reports published by the International Atomic Energy Agency (IAEA) and Japanese authorities. KLP's assessment of the case is based on advice and recommendations by GES Investment Services, an international company recognised for its expertise in the field of nuclear power, as well as Institutional Shareholder Services. KLP has also consulted specialists from the Norwegian Radiation Protection Authority and the environmental foundation Bellona.

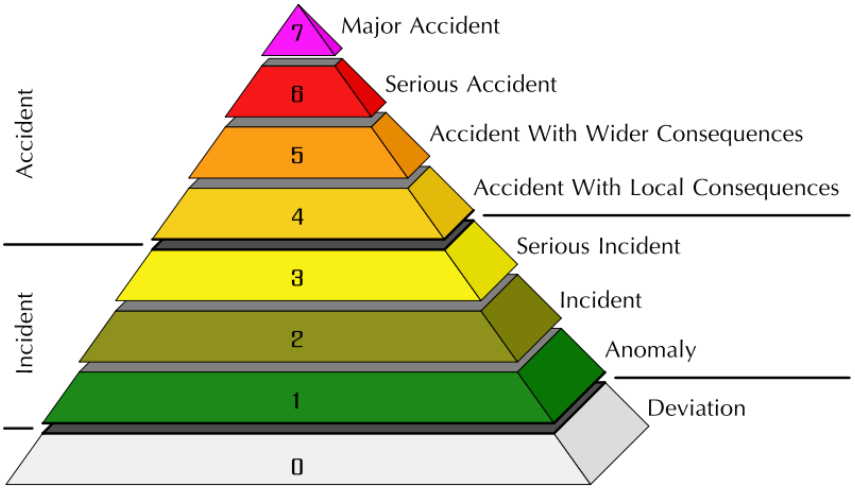
2. Nuclear power plant accident

On 11 March 2011 the Fukushima Dai-ichi nuclear power plant was struck by an earthquake and subsequent tsunami. As planned, the operative parts of Fukushima Dai-ichi were shut down after the earthquake by the automatic systems installed at the power plant, and the reserve generators started up. All the fundamental safety functions worked as intended.[4] Subsequent investigations showed that the earthquake itself caused no major damage to TEPCO's nuclear power plants nor to any other such facilities.[5]

The problems arose after the tsunami generated by the earthquake had hit Fukushima Dai-ichi and flooded the power plant. The nuclear power plant had a tsunami defence wall, but this was designed to withstand waves of 5.7m at most. The largest waves to hit Japan's east coast that day measured 38.9m in height. The highest to hit Fukushima Dai-ichi is estimated to have exceeded 14m.[6]

[3] See www.etikkradet.no for recommendations with respect to companies excluded on the grounds of severe environmental damage.
[4] IAEA (2011) [page 11, 71]
[5] World Nuclear Association (2013)
[6] IAEA (2011) [page 11]

The tsunami inundated the nuclear power plant. As a result, all power was cut to four of the six units (units 1-4) at the plant.[7] In addition, 15 of the 16 backup generators and most of the safety equipment were submerged.[8] The power cut meant that the residual heat in units 1-3 could not be dissipated, which led to fuel damage.[9] Cooling of the containment pool for spent fuel at unit 4 was also cut.[10] Hydrogen emissions led to explosions in units 1 and 3. There was a further explosion in unit 4.[11] As a result, radioactive material was released into the environment.



The Japanese Nuclear and Industrial Safety Agency (NISA)[12] designated the accident a level 7 'Major Accident' on the INES scale,[13] due to the large amount of radioactive material released into the atmosphere over the course of the first few days. Although the bulk of the emissions were caused by the explosions, further discharges of radioactive water continued for two months.[14] NISA estimated that around 130 PBq[15] of radioiodine (iodine-131) were released from the reactors, largely on 15 March and the following two days (corresponding to 0.16 per cent of the total amount stored).[16] According to NISA's report to the IAEA, NISA's estimate of the amount of radioiodine released, along with the 6 PBq of cesium-137 which was also released, corresponds to 370 PBq. The accuracy of the emission estimates is extremely uncertain, with several other sources quoting different and higher estimates (between 100 and 500 PBq of iodine-131 and 6 to 40 PBq of cesium-137).[17] Some sources report emissions of 940 PBq.[18] NISA's estimate resulted in an upgrading of the accident on the INES scale from level 5 to level 7, the highest level. NISA increased its estimate to 770 PBq in June. Japan's Nuclear Safety Commission (NSC) initially put its estimate at 630 PBq, but reduced this to 570 in August. By comparison, 770 PBq is around 15 per cent of the amount released during the Chernobyl accident.[19] Subsequent comparisons with Chernobyl estimate the emissions at, respectively, 10 per cent (iodine-131) and 5 per cent (cesium-137) of the Chernobyl emissions.[20]

[7] IAEA (2011) [page 11]
[8] IAEA (2011) [page 20]
[9] IAEA (2011) [page 12]
[10] IAEA (2011) [page 20]
[11] IAEA (2011) [page 32-33]
[12] NISA – Nuclear and Industrial Safety Agency
[13] INES – International Nuclear Event Scale. URL: http://www-ns.iaea.org/tech-areas/emergency/ines.asp
[14] World Nuclear Association (2013)
[15] The unit PBq = petabecquerel, ie 10^{15} becquerel
[16] World Nuclear Association (2013)
[17] Eg see IRSN (2012) [page 46]
[18] World Nuclear Association (2013)
[19] World Nuclear Association (2013)
[20] IRSN (2012) [page 46]

On the day of the accident the Japanese government ordered the evacuation of neighbouring areas. The evacuation zone was progressively extended as the scale of the accident became known. The day after the accident the evacuation zone was defined as the entire area within a 20 km radius from the power plant. The government ordered the evacuation of areas located 20-30 km from the power plant if the maximum radiation level of 20 millisievert (mSv) per year was exceeded there. Furthermore, the government encouraged voluntary evacuation from all areas 20-30 km from the power plant. Today, no one may return to evacuated areas unless the radiation level is below 20 mSv per year. In April, a 20 km radius no-go area was instituted. The spring of 2011 saw the continuing evacuation of all areas where high radiation levels had been measured – particularly northwest of the power plant – up to 40 km away.[21] Between 100,000 and 160,000 people were evacuated. The exact number is unknown since the authorities established different areas with different evacuation statuses, in addition to mandatory evacuation and voluntary evacuation. 78,000 people were moved out of the 20 km evacuation zone, while 62,000 people were affected in the 20-30 km zone.[22] The World Nuclear Association (2013) puts the total number evacuated at 160,000.

2.1 Radioactive contamination

In the aftermath of the accident, one of TEPCO's challenges has been to deal with the substantial amounts of contaminated water at the site.[23] Every day around 400 tonnes of water is pumped in to cool down the damaged reactors. It has been calculated that a further 400 tonnes of groundwater leaks into the site and becomes contaminated. This means that on a daily basis the company must handle around 800 tonnes of contaminated water, which must be pumped out, treated and, if not reused for cooling purposes, stored.[24]

TEPCO reported several leaks and discharges of radioactive water in December 2012, stated in Fukushima Dai-ichi's status report for 2012.[25] The quantities of water were relatively small (from a couple of litres to around 15m^3), and derived from various sources. Further leaks were reported in February, March, April, June, August and October 2013.[26] The size of the leaks has varied, but on several occasions the volume of water has been significant.

In September this year American nuclear power authorities reported on the status of radioactivity in the sea off Fukushima, and found that the level of radioactivity outside unit 2 had risen.[27] This was due to contaminated water in the ground leaching into the sea. The sources for the contaminated water include: 1. a ditch near the bay; 2. leaks direct from the reactor building where water is used for cooling; 3. leaks from the tanks where highly contaminated water is being stored.[28] This third source was reported by TEPCO in August. It involved a discharge of 300 tonnes of highly contaminated water to the surrounding fields through a valve. Japan's Nuclear Regulation Authority (NRA) categorised this leak

[21] World Nuclear Association (2013)
[22] IRSN (2012) [page 134]
[23] IAEA (2013)
[24] World Nuclear News (2013)
[25] IAEA (2012)
[26] TEPCO press release 1.3.2013 (http://www.tepco.co.jp/en/press/corp-com/release/2013/1225058_5130.html), press release 3.3.2013 (http://www.tepco.co.jp/en/press/corp-com/release/2013/1225077_5130.html), TEPCO's Fukushima Daiichi NPS Prompt Reports (http://www.tepco.co.jp/en/press/corp-com/release/2013/04/index_ho-e.html), TEPCO's announcement 1.9.2013 regarding high radiation levels found at tanks (http://www.tepco.co.jp/en/press/corp-com/release/2013/1225058_5130.html). See also press releases and notices on TEPCO's website: http://www.tepco.co.jp/en/index-e.html
[27] United States Nuclear Regulatory Commission (2013)
[28] Ibid.

as a level 3 'Serious Incident' on the INES scale. The area close to the leak has high levels of radioactivity, with doses of 100 mSv per hour, which means that the annual maximum exposure limit will be reached after 30 minutes.

In addition, around 300 tonnes of radioactive water leaks into the sea each day, despite TEPCO's efforts. There are substantial variations in the measurements, but high levels of radioactivity have been found in fish, for example, which indicates continuous discharges to the local environment (for further details see 4.2 Environmental Impact).

3. Measures implemented by the company

3.1 Immediate measures

According to the IAEA,[29] the power plant's management acted in the best possible way when the accident occurred, given the extreme circumstances. The situation was challenging: all the safety systems and instrumentation had been lost, several serious incidents had to be dealt with at four reactors simultaneously, there was a shortage of staff, equipment and lights at the site, whose overall condition after having been hit by a tsunami and several explosions was chaotic, and there were high levels of radiation. The situation was further complicated by difficulties in getting hold of external resources and problems with the telephone network that hampered communications.

Dedicated and loyal managers and workers, as well as a well-organised and flexible system, enabled an effective response to be mounted even in such an unexpected situation as that arising after the accident. According to the IAEA, this prevented the accident having even greater consequences for the health of the local population and the on-site workers than it actually did.[30] At the same time, reports also show that both TEPCO's management and the public authorities were unprepared to manage the crisis, and were unable to prevent the escalation of the subsequent damage.[31]

3.2 The company's risk assessment ahead of the accident

The IAEA states that the company had underestimated the danger posed by a tsunami, and that the company did not have satisfactory or sufficiently thorough safety assessments and systems to deal with a tsunami. Nor were the additional protection measures that had been established as a result of the post-2002 assessment sufficient to handle a tsunami of the height that occurred or the accompanying risk factors. Furthermore, these protection mechanisms had not been reviewed or approved by the regulatory authorities.[32] This, however, is the responsibility of the authorities and not something for which TEPCO is to blame.

Due to the failure of structures, systems and components once flooded, the plant was unable to withstand the impact of tsunami waves higher than 5.7m . Nor were the plant's contingency plans adequate to handle multiple, simultaneous failures in systems and reactors.[33]

[29] IAEA (2011)
[30] IAEA (2011)
[31] The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission
[32] IAEA (2011) and The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission [chapter 1.2]
[33] IAEA (2011) [page 14]

The IAEA's *Basic Safety Principles for Nuclear Power Plants* define an 'acceptable level of risk' for an existing nuclear power plant as: 'a frequency of occurrence of severe core damage that is below about 10^{-4} events per plant operating year', ie once every 10,000 years.[34] A commission set up by the Japanese parliament found that although Fukushima Dai-ichi was built to withstand a wave of 5.7m,[35] TEPCO had concluded that bigger tsunamis could potentially occur. However, since the company estimated that the risk was small, no remedial measures had been initiated. The commission felt that the company should have been aware that the probability of a tsunami wave in excess of 5.7m was considerably higher than 1 in 10,000 years.[36] Over the past 500 years, for example, Japan has been hit by at least 16 tsunamis higher than 10m, which represents a frequency rate of one every 30 years.[37] Nevertheless, the probability of waves of that height hitting the exact Fukushima area with that level of frequency is lower. The 5.7m wave height is based on data and observations following an earthquake in 1938, which resulted in waves whose maximum height was 5.7m .[38]

The Japanese building requirements for protection against earthquakes and tsunamis at nuclear power plants were defined in the 1960s, when construction of Fukushima Dai-ichi began.[39] Although new information about the risks relating to tsunamis was known, no regulatory changes had been implemented in Japan, nor were any practical alterations made at TEPCO's facility. According to the IEAA report, NISA required a new tsunami risk assessment in 2006 after the Japanese Nuclear Safety Commission (NSC) had revised the seismic standards guidelines. TEPCO notified NISA that their final seismic safety assessment report would be ready by June 2009. However, this was not carried out, and was postponed internally until January 2016.[40] In other words, it had not been carried out prior to the accident. NISA knew that TEPCO had postponed its assessment and the implementation of any necessary measures, but did not follow this up.[41]

The IAEA guidelines[42] mention earthquakes and floods, and guidelines specifically relating to tsunami risk have also been published[43], but TEPCO did not comply with these guidelines either.[44] TEPCO was not obliged to do so (merely obliged to comply with the Japanese authorities' guidelines). However, given that the IAEA's guidelines represent a form of best practice, they are a relevant standard against which to compare the company's measures.

3.3 Measures after the accident

The four reactors are to be decommissioned, a process that is estimated to take 30-40 years. The NRA has now intensified its inspections at the site, and technical advisors employed by the NRA have advised TEPCO on issues relating to radiation monitoring and site-specific mapping of radioactive contamination.[45] This year the Japanese government announced that it will now take over management of the emergency measures being implemented to deal with the radioactive leaks at the nuclear power

[34] IAEA (1999) [page 11]
[35] IAEA (2011) [page 45]
[36] The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission [chapter 1.2]
[37] Mohrback, Ludger (2013)
[38] IAEA (2011) [page 75]
[39] Mohrback (2013)
[40] IAEA (2011) [page 76], The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission
[41] The National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission
[42] IAEA (1999a)
[43] IAEA (2003)
[44] IAEA (2011 [page 45], World Nuclear Association (2013)
[45] Nuclear Regulation Authority, Japan (2013)

plant, which could indicate a lack of confidence in the company's ability to handle the situation on its own. In the autumn of 2013 the government invited foreign companies and experts to submit proposals and advice on how the situation should be managed, since internal resources had not succeeded in resolving the problems concerned.[46]

TEPCO and the government will, among other things, implement the following measures:[47]

- The highly contaminated water will be pumped out of the potentially leaking pool. The other storage tanks will be inspected to prevent any leaks. There are plans to remove the radioactive contamination from the water. The planned water treatment system will, hopefully, be able to remove all the artificial radioactive elements, apart from tritium, from the water. The system will be capable of processing 750 tonnes of water per day, and is expected to go into operation in 2015.[48]
- To prevent the water from running into the sea, a steel wall will be constructed at the harbour. In addition, sodium silicate (water glass or liquid glass) will be injected into the ground to form a groundwater barrier. Radioactive water behind these barriers will be pumped out and treated to prevent it reaching the sea.
- With support from the government, there are also plans to build a subterranean wall of frozen earth around units 1-4 to prevent the groundwater from mixing with highly contaminated water from the reactor building.

It is difficult to determine the extent to which the company's measures are adequate or at the level to be expected. There are many technical aspects which need to be considered in order to decide whether the measures are of a high enough quality. Such an assessment lies outside the scope of this recommendation.

In October 2012 the company acknowledged that failures in its safety culture and a lack of emergency preparedness contributed to the scale of the accident. At the same time, the company presented a plan of reforms to improve its safety activities.[49]

4. Impact on the environment, human life and health

The fuel damage and explosions resulted in radioactive contamination being released into the environment.[50] However, considerable uncertainty still attaches to estimates and actual consequences for the environment and human life such a short time after the accident.

[46] World Nuclear News (2013)
[47] See pictures and an explanation published by The Guardian newspaper: http://www.theguardian.com/environment/interactive/2013/oct/15/fukushima-daiichi-nuclear-power-plant-tsunami-cleanup-interactive
[48] United States Nuclear Regulatory Commission (2013)
[49] TEPCO (2012)
[50] IAEA (2011) [page 12]

4.1 Impact on human life and health

Around 30 workers at the plant were exposed to radiation of 100–250 mSv, although more recent information indicates that certain workers may have been exposed to higher internal doses during the first few days.[51] According to measurements carried out on TEPCO's employees, the highest dose anyone was exposed to during the clean-up operation in 2012 was 23,53 mSv (one person), while the remaining exposures were measured at under 20 mSv.[52] The maximum annual dose for workers handling radiation is 50 mSv per year, or 20 mSv per year per five years.[53] The recommended maximum dose was temporarily increased to 250 mSv in connection with the accident.

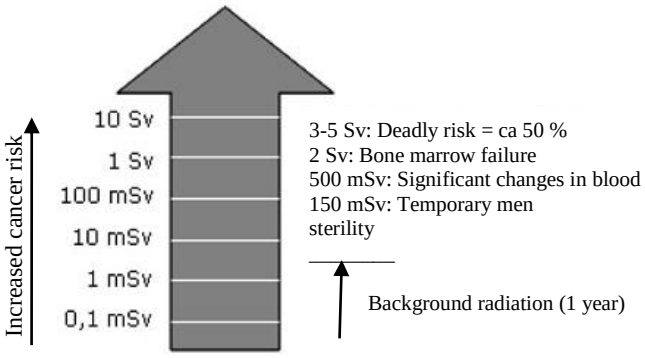


Fig. 2: Maximum limits for radiation exposure.
Source: Norwegian *Radiation Protection Authority*

At the end of 2011 TEPCO had checked the radiation exposure of thousands of people who had worked at the nuclear power plant since the accident. The report showed that 167 employees had received doses in excess of 100 mSv. Of these, 135 people had received doses of 100–150 mSv, 23 people had received doses of 150–200 mSv, 3 people had received doses of 200–250 mSv and 6 people had received doses of over 250 mSv (between 309 and 678 mSv). 250 mSv is the international maximum permitted for personnel in emergency situations who are performing life-saving activities.[54] No workers have contracted radiation sickness, even though hundreds of workers at the plant were exposed to higher than normal radiation levels.

The accident resulted in radioactive contamination of a large area of land. The Japanese government has established a programme to restore the area and improve the local population's living conditions.

It is highly uncertain how much radiation the public has been exposed to as a result of the accident. The World Health Organisation (WHO) nevertheless reports that the estimated relative risk of specific types of cancer in certain parts of the population in the Fukushima district has risen after the accident.[55] This means that, compared with the norm, the increased relative risk[56] of getting cancer for people closest to the most contaminated sites is as follows:

- All solid cancers: around 4 per cent for women who were exposed to radiation as infants.
- Breast cancer: around 6 per cent for women who were exposed as infants.
- Leukaemia: around 7 per cent for men who were exposed as infants.
- Thyroid cancer: up to 70 per cent for women who were exposed as infants (the normally expected lifetime risk of thyroid cancer for women is 0.75 per cent).

[51] IAEA (2011)
[52] IAEA (2012)
[53] IAEA (1999)
[54] World Nuclear Association (2013)
[55] WHO (2013)
[56] Note that the WHO report estimates the relative risk, not the absolute risk. The absolute risk of getting cancer is still low, but the increase in the relative risk is large.

The risk for people in the second most contaminated areas is estimated at half of that for those in the most contaminated areas. The report also discusses the emergency team who worked inside the power plant. The WHO estimates that two out of three of these people have a risk of cancer in line with the rest of the population in the area, and that one out of three will have an increased risk.[57]

A series of recent news articles has criticised the many incidents associated with radioactive contamination, the escalating problem of contaminated water and the conditions for the many thousands of workers engaged in the effort.[58] It is also uncertain whether what is being reported by the company and the Japanese authorities at any given time is correct, since the various sources give out slightly differing information.

Experience from the Chernobyl accident shows that the impact on population health has not generally related to the radiation people may have been exposed to. The accident, the contamination and subsequent evacuation have, in particular, subjected the population to uncertainty, stress and anxiety – a major psychological burden that impairs health and quality of life.[59] There is an overhanging risk of identical consequences in the Fukushima district.

4.2 Environmental impact

TEPCO's measurements of radioactivity in locally caught fish showed record levels at the start of 2013.[60] Cesium levels of up to several hundred thousand Bq per kg were observed in bottom-dwelling fish. This may be compared with the maximum permitted limit of 100 Bq per kg for fish to be sold in Japan.

Studies also show negative effects on land. These include observed physiological and genetic damage and abnormalities in butterflies as a result of radiation after the accident[61], as well as a clear decline in the numbers of insects and birds.[62]

5. Corporate governance

Since the accident the company has held three annual general meetings (AGM), at all of which the accident and the company's handling thereof have been key issues. Before the accident the company was criticised for its board of directors' lack of independence, suspicions of insider trading and a significant dilution of existing shareholders in connection with the issue of new shares.[63]

Following the accident some changes have been made to the company's board and management. The company president, another senior executive and two board members resigned. The remuneration paid to certain board members, executives and employees was also cut.

The 2012 AGM approved the nationalisation of the company, with the Japanese state investing JPY 1 trillion, approximately USD 10 billion, and acquiring a shareholding of just over 50 per cent. This was crucial to the survival of the company. As a result, changes were made to the company's governing

[57] WHO (2013)
[58] http://www.theguardian.com/environment/fukushima
[59] IAEA (1991) [page 32]
[60] TEPCO (2013)
[61] Hiyama et al (2012)
[62] Møller et al (2012a) [page 36–39] and Møller et al (2012b) [75–78]
[63] Company analysis performed by Institutional Shareholder Services (ISS), service provider for KLP.

structure. The establishment of nomination, audit and remuneration committees has improved the company's corporate governance.

At recent AGMs KLP supported several proposals to further enhance TEPCO's corporate governance. At the last two AGMs KLP has, moreover, voted against the company president, due to a lack of confidence in the company's management of environmental and social risk. In light of the critical situation in which the company finds itself, KLP voted against several board members at this year's AGM, with particular reference to the board's lack of independence.

TEPCO has already paid out some compensation and remains liable for evacuation costs and expenses associated with the clean-up effort in the region.[64] The company's liability for compensation payments after the accident is alone estimated at JPY 2.5 trillion, approximately USD 24 billion. No estimate has been made of the costs associated with decontamination and decommissioning.[65]

6. Assessment

In this matter KLP has emphasised the **scale** of the accident at the nuclear power plant and its consequences. The nuclear power industry is a high-risk sector, given the huge potential harm an accident can cause in the form of long-term and irreversible damage to people and the environment. For this reason risk assessment and risk management are additionally important for companies within the sector.

In this instance the damage has been less extensive than it could have been in a worst case scenario. The most important factor for damage limitation is that when the radioactive emissions were at their peak (around 15 March), the region's inhabitants had already been evacuated. The damage must nevertheless be considered substantial, given that the harmful effects extend over a large geographic area and affect a great many people. The accident will, furthermore, have an extremely long-term impact. It is estimated that the clean-up operation will take upwards of 40 years, and areas around the nuclear power plant will remain evacuated for a long time.

No one has so far been diagnosed with an accident-related medical condition, largely because the evacuation was carried early enough, but also perhaps because sufficient time has not elapsed since the accident took place. The negative **health consequences** are nevertheless significant, with an increase in the risk of cancer and considerable psychological distress deriving from the enduring uncertainty caused by the accident and subsequent evacuation.

Although the company failed to carry out updated risk assessments, as directed and recommended by the authorities, the company has **not violated any national or international laws**. The company's actions may, however, be seen in light of **international standards**, in this case the IAEA's safety principles.[66] The IAEA states that Principle 3, which deals with safety management, was complied with,

[64] Mohrback (2013)
[65] Company analysis performed by Institutional Shareholder Services (ISS), service provider for KLP.
[66] Se IAEA (2006) and IAEA (1999a) IAEA Fundamental Safety Principles:

1. Responsibility for safety
2. Role of government
3. Leadership and management for safety
4. Justification of facilities and activities
5. Optimization of protection
6. Limitation of risks to individuals

given that the situation arising from the accident was well handled. Nevertheless, management had not implemented preventive measures as required by the authorities, and the tsunami risk had been underestimated.[67] It may therefore be argued that TEPCO violated Principle 8, which deals with accident prevention.

In the aftermath of the accident, the clean-up operation has been TEPCO's main task. The company is working hard to stop the leaks and prevent further emissions from the remaining reactor fuel. TEPCO is monitoring levels of radioactivity and is keeping the authorities and the public continuously informed. Action plans have been drawn up in collaboration with the IAEA and Japanese authorities. There are therefore no **grounds to assert that the company has failed to act** to ameliorate the damage. Nevertheless, it is clear that the situation is still not under control, and that the measures implemented by the company have, accordingly, been inadequate.

It is uncertain whether the planned measures will have the desired effect and be sufficient to bring contamination from the nuclear power plant under control. Over a thousand tanks of contaminated water are being stored at the site, and the company faces major challenges with respect to the clean-up operation and decommissioning process. There is, therefore, a considerable risk of further radioactive contamination to the air, ground and water. In KLP's assessment, continued investment in TEPCO exposes KLP to the risk of being deemed complicit in severe environmental pollution.

KLP concludes that the company has made substantial efforts to gain control over the situation, and deserves credit for having effectively handled the disaster itself. Nevertheless, in the overall picture we see signs of systematic weaknesses in the company's assessment of the gravity of the situation. This has been decisive for KLP's decision. Weaknesses have been found in the company's risk assessment prior to the accident, and it seems as though this continues to be the case after the accident, given that the measures implemented so far have been insufficient to gain control over the situation. KLP's conclusion is that the current risk picture, combined with TEPCO's underestimation of the risk and need for action both before and after the accident, represent such an unacceptable risk of complicity in severe environmental damage as to violate KLP responsible investment guidelines.

7. Decision

KLP and the KLP funds exclude Tokyo Electric Power Company from their investments with effect from 1 December 2013.

7. Protection of present and future generations
8. Prevention of accidents
9. Emergency preparedness and response
10. Protective actions to reduce existing or unregulated radiation risks

[67] IAEA (2011) [page 13]

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