

# GLOBAL SECURITY

PUBLIC SECURITY AND DISASTER RESPONSE

ISSN 2193-0821, 1-2022



## **Criminology**

System to Dispose  
Garbage in Tokyo

## **Cybersecurity**

Take the Guesswork Out  
of Critical Infrastructure Cybersecurity

## **Disaster Response**

Ukraine: ICRC witnesses Scenes of  
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## **Exhibition**

Milipol Qatar 2022

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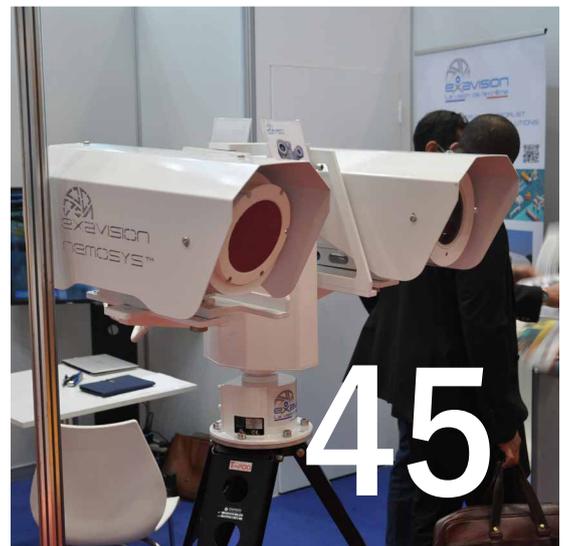
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Dear reader,

This current issue of “Global Security” deals with international criminology, security systems, and disaster response.

**International Criminology:** In Japan local governments are responsible for garbage disposal and recycling of garbage. Therefore, there is big disparity in the system for garbage disposal and recycling according to the financial condition of each government. Minato ward government has the strong financial power, by which its system for garbage disposal and recycling is a high-quality model in Japan. Minoru Yokoyama, Professor Emeritus of Kokugakuin University in Tokyo, member of our editorial team, explains the practices on garbage disposal and recycling of garbage in Tokyo.

**Cybersecurity:** The disruption of critical infrastructure has a ripple effect on national and global economies and societies; directly impacting the sovereignty of nations and its people. When a Colonial Pipelines, Wolf Creek Nuclear Operating Corporation, or a Springhill Medical Center cyberattack happens repeatedly across the world, the entire critical infrastructure security ecosystem needs to be re-imagined. Saket Modi, Co-Founder and CEO at Safe Security, talks about the tactics, techniques, and procedures used by the new-age cybercriminal.

**International View:** Milipol Qatar 2022, the international event for homeland security and civil defence, is opening from 24 to 26 May 2022 at Doha Exhibition and Convention Centre (DECC). The event is known for the professionalism and the quality of attendees, for showcasing the latest innovative products and services and for covering all fields of public and industrial security. Milipol Qatar provides access to the Middle East security markets and enables key international industry players to meet in a fast-developing environment with medium- to long-term economic and strategic projects.

We hope you enjoy reading this issue. We are always happy to receive your feedback as well as suggestions for future issues at [info@homeland-sec.de](mailto:info@homeland-sec.de).

Yours sincerely,

Dr. Nadine Seumenicht,  
Publisher & Editor-in-Chief



Exhibitors at the upcoming event Milipol Qatar 2022.



# System to Dispose Garbage in Tokyo

Minoru Yokoyama, Professor Emeritus  
of Kokugakuin University in Tokyo

## Garbage Disposal in Edo (old Tokyo)



Nihon Bridge Drawn as Series of Ukiyo-e Prints on Famous Places in East Capital by Hiroshige in 1832. As Edo became a large consumers' society, many goods were carried by ships on Nihonbashi River, a branch river of Sumida River, from Edo Bay. Along the river there were many warehouses with a white wall. In the river there were many piles to prevent flowing garbage from destroying banks.

**In 1603 Tokugawa Ieyasu was appointed as Conqueror General by Goyozei Emperor. Then, he opened Shogunate in Edo (old Tokyo). He ordered Daimyos (feudal lords) to participate in jobs to expand Edo Castle. In addition, he ordered them to open waterways to carry rice and construction materials from Edo Bay to the castle. Soil excavated by the construction of waterways and moats surrounding the castle was carried to reclaim Hibiya Cove. Soil shaved off at Mt. Kanda was also used to reclaim the seashore along Edo Bay. At the hill area westward of the castle retainers of Tokugawa Shogun had their houses. At the reclaimed land eastward of the castle the town people such as merchants and craft men lived.**

In 1636 the system of alternative attendance was introduced. Under this system about 250 Daimyos were obligated to come and go between Edo and their territory every two years. In addition, their wife had to live in

Edo as a hostage. After introduction of this system many wide lands surrounding Edo Castle were occupied for Daimyo's residence. To find good jobs many people came to Edo. Therefore, the population in Edo expanded rapidly. The total number of town people in Edo increased from about 150,000 in 1609 to over 500,000 in 1721. Adding the total number of persons living at the area for warriors and monks, the population in Edo seemed to reach over one million in the early 18th century. Since then it remained between one million and 1.25 million until the end of Edo Era.<sup>1</sup> The population in London and in Paris were 860,000 in 1801 and 670,000 in 1802 respectively. Therefore, at the beginning of 19th century Edo seemed to be the biggest city in the world. As Edo became a big consumers' society, garbage increased. People living in Edo dumped garbage into open spaces, rivers and moats. Therefore, the garbage disposal became

<sup>1</sup> According to the first national census conducted around 1720, the population in Japan amounted to approximately 30 million. Since then it remained relatively constant until the end of Edo Era.



Sunset Light at Ryogoku Bridge Drawn as Series of Ukiyo-e Prints on Elegant Eight Views in Edo by Harunobu around 1765. Harunobu drew two women cooling on a balcony along Sumida River near Ryogoku Bridge. A man caught fishes by a net on the river.

a serious problem.

In 1649 Shogunate issued a ban to throw garbage away in open spaces. In 1655 a new ban was issued to prohibit people from throw garbage away into rivers (Ito: 358). In addition, they were obliged to carry garbage by ships to Eitai which was located at an estuary of Sumida River.

In 1657 Meireki Big Fire occurred, by which houses and buildings occupying about 60 percent of all land in Edo were burned. After this fire a new city plan was drafted to prevent a fire from spreading. Under this plan the system to dispose of garbage developed. Everywhere in Edo garbage boxes were set up. Houses along a main street were equipped with a garbage box without a lid at their backyard. Ordinary town people living in row houses located behind a main street shared a garbage box<sup>2</sup>. The garbage collected in their box was carried by themselves or by employed laborers to a collection point near a ship stop. Then, their contractor carried the garbage by ships to Eitai. First, the ship came to a collection point three days in a month. Later it came every time garbage filled up at a collection point. By this way the

2 In addition to a garbage box, people living in row houses shared a toilet and a well to pump water from underground waterway.

estuary area at Eitai was reclaimed toward Edo Bay.

In 1696 Shingohei and Jinbei made a plan to dispose of garbage effectively (Ito: 359). They proposed to monopolize jobs of disposing of garbage, by insisting a merit that people's payment of fare to dispose of garbage was reduced. They planned to carry garbage by ships to a tide flat of Kazusa Mio along Edo Bay. Then, the dumped garbage would be covered by soil dredged at the estuary of Sumida River. By dredging the ship transportation on the river became smooth. In addition, at the reclaimed land people could grow rice and vegetables. As they mentioned such merits, Shogunate gave them permission to reclaim Kazusa Mio, although the permission was also given to similar plans by other applicants. As a result around 1700 reclamation of a rice field by the use of dumped garbage was activated at the tide flat eastward of Sumida River. Garbage was not waste but material for reclamation.

### Sewage Disposal in Edo

With expansion of population in Edo Shogunate had to secure supply of water for people. There were many springs at the edge of Musashino Plateau at which Edo was located. From there springs water flew to ponds and rivers. Around 1629 Shogunate constructed a waterway to supply water from Inogashira Pond to Edo, which was called Kanda Waterway. However, the supply of water by this waterway was not sufficient for people living in Edo of which population increased rapidly. To expand supply of water a new waterway from Tama River was constructed under the leadership of Tamagawa brothers. It was completed in 1653. Through this waterway of 43 kilometers water flew from a sluice gate of Tama River at Hamura to Yotsuya, an entrance of Edo. Water flowing in a wooden pipe buried in underground from Yotsuya was supplied to people living in the central area in Edo. Every row house in which many ordinary town persons lived, was equipped with a well to pump water flowing in the underground pipe<sup>3</sup>. They used water pumped from a well every time they needed. Therefore, they flew very few waste water away to a sewer (Ishii, 175),

At both sides of main streets there were sewers, to which rain water dropping from a roof of houses flowed. Row houses located behind a main street were equipped with small sewers, from which sewage flowed to the street sewers. Sewage in street sewers flowed to the larger sewers. At last sewage was dropped from sewers into moats or rivers.

Shogunate ordered to hit piles at some places in street sewers to prevent garbage from flowing down. Residents at every town were obliged to collect garbage accumulating around the piles by themselves or

3 The total length of the underground pipe amounted to 150 kilometers (Ishikawa, 175).



Nihon Bridge Drawn as Later Version of Series of 53 Post Towns on East Sea Road from Edo to Kyoto by Hiroshige in 1833. Hiroshige described many town persons in front of Nihon Bridge. Sellers carried goods with a balance rod. Collectors also carried wasted resources with a balanced rod.

by employed laborers three days in a month. Under this system there was no serious water pollution. Therefore, people enjoyed eating fresh fishes caught in Edo Bay and rivers in Edo.

### “3 Rs” in Edo

In 1992 United Nations Conference on Environment and Development was held in Rio de Janeiro, at which heads of many countries discussed sustainable development under watch of many NGOs coming from all over the world. Since this conference the idea of “3 Rs” has been emphasized to realize sustainable development. The Japan’s Ministry of Economy, Trade and Industry promotes „3 Rs“ in order to create a sustainable society, in which the good balance between environment and economy is maintained (<https://www.meti.go.jp/policy/recycle/main/english/index.html>). The first R is “Reduce”, that is, to produce garbage as little as possible in order to minimize waste resources. The second R is “Reuse”, the repeating use of goods. The third R is “Recycle”, the use of rehabilitated resources. I will explain how people realized “3 Rs” in Edo.

In Edo Era almost all goods and materials for clothing, food and housing were made from plants, which grew by solar energy receiving from a sun within the past three years. Therefore, Ishikawa regarded the

society in Edo Era as “a plant-based society”, in which people co-existed with and depended on plants (Ishikawa, 12). Although the development was slow, the society was sustainable under the realization of “3 Rs”.

In Edo with one million population people lived by goods supplied from all over the country<sup>4</sup>. However, the supplied goods were not abundant for them. Therefore, when they consumed a good, they said “Mottainai” while pressing thanks to its producers. Under the culture of “Mottainai” they used every good carefully as valuable, and avoided throwing it away as garbage. People belonging to old generation still share the traditional culture of “Mottainai”. For example, they do not remain any grain of rice at the meal.

In Edo people participated in many jobs to realize “3 Rs” (Japan for Sustainability, 2003a). One of these jobs was collection of waste resources. For example, many poor people worked as used-paper collectors. Specialized buyers contributed to collecting such used or damaged goods as papers, umbrella ribs, barrels, candle waxes and ashes. Some buyers walked around while singing „let’s exchange, let’s exchange“ in order to offer small toys and candies to children in return for old nails and other metal pieces, which the children found. In Edo Era even children contributed to collecting waste

<sup>4</sup> In Edo Era Japan was self-sufficient in all resources, since nothing could be imported from overseas due to the national policy of isolation (Japan for Sustainability, 2003b).

resources. As people cleaned every morning in front of their houses, their town was maintained clean<sup>5</sup>.

In Edo Era paper was valuable. People uses paper repeatedly for writing. They continued to use paper products carefully as long as possible. For example, according to a record a textbook on arithmetic equipped at a Teragoya (a private elementary school for ordinary children) continued to be used for 109 years (Japan for Sustainability, 2003a). Concerning recycling of paper many poor paper-collectors picked up a thrown piece of paper while walking around the street. They sold the collected paper to wholesalers. In addition, the used-paper buyers collected a lot of used paper from people by offering the new recycled paper in return for the used paper. After wholesalers sorted the thrown-away piece of paper and the used paper, they sold the paper to paper manufacturers who produced the recycled paper. In Edo Era paper was completely reused and recycled.

As clothes were very valuable, people continued to wear new clothes until becoming tattered. They sold the tattered clothes to dealers in old clothes. The dealers tailored to the everyday clothes, and sold them at a cheap price. When the dealers bought the tattered everyday clothes, they tailored to the everyday clothes for children. When the everyday clothes for children became tattered, these clothes were used as diapers or as dust clothes. Diapers and dust clothes became tattered, they were burn to make ashes, which ash buyers bought. In Edo clothes were completely reused and recycled. Even a small piece of cloth was not thrown away as garbage.

In Edo there were various kinds of specialized craftsmen to repair somethings (Japan for Sustainability, 2003a). Tinkers repaired old pans, kettles and pots. They repaired even those rendered useless by holes in the bottom. As they had special techniques to use bellows to raise the temperature of charcoal fires, they could repair holes by using other metal pieces or by welding. Other repairers glued broken pieces of ceramics with starch extracted from sticky rice, and heated for coagulation. There were many other kinds of specialized craftsmen to repair broken articles. As they repaired the items skillfully at a cheap price, people were willing to use the repaired ones.

The most evaluated system of recycling in Edo was seen in the disposal of human waste. With increase in population in Edo farmers living in the areas surrounding Edo endeavored to increase in productivity in agriculture. To fertilize their land, they used human waste carried from Edo<sup>6</sup>.

At both independent houses and row houses pots to preserve human waste were equipped. Famers commuted to their contacted houses to dip human waste

out from pots (Ishikawa: 164). They bought the human waste by cash or by offering their bringing vegetables. In case of row houses, an Oya (a manger) received the cash or the vegetables by offering human waste in pots. It was good income for him.

Farmers made compost by mixing of straws and fallen leaves with carried human waste. As the composted land became fertile, they had good harvest. Then, they carried the grown vegetables to Edo to sell residents. This was most effective system of recycling which agricultural economists have evaluated highly. German chemist Justus von Liebig regarded as the father of modern agricultural chemistry, knew use of human waste as fertilizer in Japan and China. In his book published in 1840 he praised this agricultural practice highly, because it kept a farmland fertile forever. He also pointed out that it brings the increase in productivity in proportion to that in population (Ishikawa, 160). However, the increase in population Edo stopped since the beginning of 18th century while the demand of agricultural products continued to increase. The price of human waste was lifted with the increase in demand of human waste as materials of fertilizer. The price was tripled during 40 years from 1750 (Ishikawa, 164).

In big cities in European countries like London and Paris people threw their human waste away from a window of their building to the street below. Therefore, the plague occurred repeatedly due to bad hygiene conditions. On the other hand, Edo was a recycled clean city.

### Gradual Development of Garbage Disposal in Tokyo after Meiji Restoration

In 1868 Meiji Restoration occurred. On September 3 in 1868 Edo was renamed Tokyo, which means a capital eastward of Kyoto. On October 13 Meiji Emperor moved from Kyoto to Tokyo. Many systems in Tokyo as a new capital were westernized. However, the system of garbage disposal at Edo Era was fundamentally maintained in Tokyo soon after Meiji Restoration.

The total amount of garbage increased in Tokyo with the rapid growth of population owing to industrialization and urbanization. To prevent the spread of such infectious disease as cholera and pest, people's interest in public health increased<sup>7</sup>. In 1900 the Law to Cleanse Garbage was enacted at the Diet. Under his law the local governments were obliged to collect and dispose of garbage in place of residents in the community. Under the rule to enforce this law the governments were obligated to collect garbage speedily and to incinerate the collected garbage. After 1900 individual houses became

<sup>5</sup> Eta and Hinin (people belonging to the outcaste) disposed of an animal carcass.

<sup>6</sup> Farmers living northward and eastward from Edo carried the human waste by ships, while farmers living on Musashino Plateau carried it by the use of horses (Ishii, 164).

<sup>7</sup> We witnessed the first infection of cholera in 1822. The second spread of cholera occurred in 1858, at which the total number of buried bodies of persons died by cholera amounted to 160,119 in Edo. In the early Meiji Era many people were concerned about the spread of cholera infection. It was not until August, 1877, that the Ministry of Interior issued an ordinance to prevent cholera.

equipped with a garbage box attached by a lid.

Around 1900 the collected garbage was carried by ships to some landfills for open burning. In landfills many flies grew. In addition, the burning of garbage caused odor and dirty smoke. As residents living near landfills complained about it, in 1903 Tokyo Metropolitan Government decided to buy a land to construct a garbage incineration plant<sup>8</sup>. However, the government failed to buy the land because of opposition movement against construction of the plant. It was not until 1929 that the plant managed by Tokyo Metropolitan Government was completed at Fukagawa.

The first plant in Tokyo was completed at Osaki in 1924, one year after Great Kanto Earthquake. In the plant there was a big furnace to burn garbage. At Fukagawa Garbage Incineration Plant some machines such as a crane, a blower and a machine to take valuable resources out from garbage were introduced.

In 1930 the Law to Cleanse Garbage was revised, under which the local governments were obliged to incinerate the collected garbage. Under this law Tokyo Metropolitan Government was also obliged to collect, sort and incinerate garbage. In 1933 No. 2 Plant and No. 3 Plant were completed at Fukagawa. However, owing to the insufficient sorting of garbage and the incineration of too much garbage a lot of dirty smoke were emitted, by which air pollution occurred.

### Development of Garbage Disposal in Tokyo after World War II

Since November 24, 1944, Boeing B-29 Superfortress of U.S. Air Force attacked Tokyo 106 times. Especially, at night on March 10, 1945, more than 100,000 persons were killed by bombing. By the bombing the land of 144 square kilometers or 26.4 percent among all lands in 23 wards in Tokyo were burnt (Clean Authority in 23 Wards in Tokyo, 2015:11). Most of burnt debris of about 4,800,000 square meters were dumped into waterways, by which many waterways constructed in Edo Era were destroyed.

Soon after the end of World War II on August 15, 1945, many people returned to Tokyo. They lived in a barrack. On June 25, 1950, the Korean War broke out, by which the economic boom occurred in Japan. In 1951 Tokyo Metropolitan Government established the Cleansing Bureau, under which the policy on garbage disposal developed. For example, the system to collect garbage was improved by the introduction of new-typed dump cars. Around 1951 a small-sized trailer car was introduced to collect garbage on an alley. Around 1955 a packer car with equipment to press garbage was introduced, which

contributed to carrying a lot of garbage at once. In April, 1957, the garbage incineration plant was renamed as the cleansing plant. In 1961 the Tokyo Metropolitan Government started the regular collection of garbage in a plastic bucket, which each resident carried to a collection spot. In 1964 Adachi Cleansing Plant equipped with a continuous machine incinerator opened. By the introduction of this incinerator the mass emission of odor and dirty smoke stopped.

Japan achieved the high economic growth during 18 years since 1955. In 1960s the heavy chemical industry developed, by which problems about environmental pollution became serious (Yokoyama, 2007:335). In November, 1970, an extraordinary session of the Diet opened to discuss measures to cope with pollution problems. In this session fourteen laws including the Law on Waste Disposal and Cleansing were enacted.

In the late 1960s the mass production, the mass consumption and the throwing away of one-time used articles began after American model. For example, with the introduction of the American styled industry of first foods a lot of one-used articles as forks, knives and plates were thrown away as garbage<sup>9</sup>. Under the influence of American model many people, especially youngsters abandoned the traditional culture of "Mottainai". Therefore, when such valuable things as TV sets, washing machines and refrigerators became out of order, people did not repair them, and threw away as bulky garbage. In addition, people became very sensitive to keep clean from the sanitary viewpoint. Then, restaurants began to offer half-split wooden chopsticks for one-time use in the place of used ones. By this change a lot of wood were wasted<sup>10</sup>.

During the period of high economic growth since 1955 we witnessed the tremendous increase in the amount of garbage thrown out in 23 wards, the central area in Tokyo. The total amount of thrown-out garbage increased from about 110,000 tons in 1947 to over 1,000,000 tons in 1960 and to about 4,000,000 tons in 1970 (Clean Authority in 23 Wards in Tokyo, 2015:12). In the late 1960s the capacity of the garbage incineration plants in 23 wards could not keep up the increase in thrown-out garbage. In addition, the problem about unlawful dumping of garbage and poisonous industrial waste became serious.

Garbage was diversified as people began to use a lot of new products, especially plastic products<sup>11</sup>. One of reasons why the use of plastic products increased was stores' offer of plastic bags for free as shopping bags.<sup>12</sup>

<sup>9</sup> On July 20, 1971, the first store of MacDonald opened at Ginza Mitsukoshi Department Store.

<sup>10</sup> As the idea of "3 R" becomes shared widely, recently many restaurants offer the cleanly washed chopsticks to customers. However, stores continue to offer half-split chopsticks to those who buy a lunch box.

<sup>11</sup> In 1970 the percent of waste plastic products among all garbage amounted to 9.7 percent (Clean Authority in 23 Wards in Tokyo, 2015:12).

<sup>12</sup> To reduce plastic garbage, all stores will be obliged to offer shopping plastic bags for a fee to customers from July 1st in 2020.

<sup>8</sup> The first garbage incineration plant in Japan was completed in 1897 in Tsuruga in Fukui Prefecture.

In addition, many foods began to be packed in a plastic bag or box from sanitary viewpoint.

When waste plastic products were burnt in an incinerator, poisonous hydrogen chloride gas was emitted. By burning plastics, the heat with high temperature generated, by which the incinerator was damaged. Therefore, all waste plastic products had to be dumped at landfills.

The main landfills at which garbage collected in 23 wards was dumped were the No. 8 reclaimed island and No. 14 one along Tokyo Bay. At Yumenoshima (No. 14 island), of which the area dimension was 457,860 square meters, the garbage began to be dumped in December, 1957. At that time a lot of incombustible garbage was dumped at landfills along Tokyo Bay. The percentage of garbage dumped at these landfills among all thrown-out garbage reached 85 percent in 1961<sup>13</sup>. A lot of raw garbage was dumped at open spaces in the landfills, at which we witnessed many rats, flocks of flies and fires by spontaneous ignition. In June, 1960, a large flock of flies grown at Yumenoshima flew to the residence area in Koto ward. To cope with this nuisance, on July 16 the Koto ward government together with the police, the fire-fighting and the Self Defense Forces started a strategy to burn raw garbage away. It took six months to eradicate flies flying to the residence area.

In 1967 Ryokichi Minobe, a Marxist, was elected as a governor in Tokyo. He declared fighting at "War against Garbage". At that time people living in Koto ward advocated to dispose of garbage in each ward. In response to their advocacy Tokyo Metropolitan Government made a plan to construct cleansing plants equipped with an incinerator and several pollution prevention devices controlled by computers. However, it was not easy to realize the plan. For example, the plan to construct the plant in Sugunami ward encountered the sever opposition by residents. Resisting it, residents in Koto ward stopped trucks carrying garbage from Sugunami to Yumenoshima. After the negotiation for a long time in December, 1974, the construction of the plant in Sugunami was decided. Without residents' understanding it is difficult to construct facilities to dispose of garbage.

Since 1970 the system of garbage disposal and recycling of garbage in 23 wards has developed step by step. Table 1 shows the main development. Next, I would like to explain the current system in Tokyo.

### Current System of Garbage Disposal and Recycling of Garbage in Tokyo

In 2000 Basic Law on Establishing a Sound Material-Cycle Society was enacted. In the consideration of this law cleansing jobs were transferred from Tokyo Metropolitan

Government to each local government in 23 wards. Then, the government in 23 wards was obliged to reduce and recycle garbage. To fulfill this obligation together, they founded Clean Authority in 23 Wards in Tokyo. First, I would like to show the fundamental flowchart of garbage disposal and recycling of garbage in Tokyo.

The routes are different according to four kinds of garbage; combustible garbage, incombustible garbage, bulky garbage and waste resources. Each government in 23 wards is responsible for collecting and carrying of all garbage. Concerning incombustible garbage and bulky garbage small-sized dump cars carry garbage to relay stations, at which large dump cars reload the carried garbage. The large dump cars carry garbage to 21 cleansing plants for incineration, two centers to dispose of incombustible garbage and a facility to crack bulky garbage into pieces, which Clean Authority in 23 Wards in Tokyo is responsible for operating. The remained garbage is dumped into two landfills on Tokyo Bay, which Tokyo Metropolitan Government manages. Next, I would like to explain this flowchart in detail by focusing on the situation in Minato ward, in which I live.

### Organization for Garbage Disposal in Minato Ward

Minato ward government has the Minato Recycling & Cleansing Office, which was established in April, 2012, by the merge of the Division to Support Environmental Recycling and the Cleansing Division. The purpose of the establishment of this office is to unite collecting and carrying of garbage, and the reduction and recycling of garbage in order to realize a recycling society and a society with fewer emission of carbon to prevent global warming. This realization is urgent in the advancement of global warming, the increase in population and the depletion in natural resources.

The total population in Minato ward increased from 249,472 in 1955 to 256,038 in 1961. Since 1960 office buildings increased, by which population working daytime in Minato ward increased, while residents decreased until the middle of 1990s. The total population in Minato ward declined to 149,716 in 1996. Since the late 1990s many ware houses were closed at the area along Tokyo Bay, after which many tower buildings for apartments have been constructed. Then, the population increased to 253,639 in 2018. However, as the total number of persons working at daytime in Minato ward has also continued to increase, it seems to be three times more than that of residents<sup>14</sup>.

In 1999 the collection of waste resources such as used papers, bottles and cans at all collection spots started, by which the total amount of thrown-out garbage

<sup>13</sup> As a lot of garbage continued to be dumped, the landfill at Yumenoshima had to be closed in March, 1973.

<sup>14</sup> The estimated total population at daytime in Minato ward amounted to 886,173 at the beginning of October, 2010, while that at nighttime amounted to 205,131 (Minato Recycling & Cleansing Office: 1).



Collection Spot: On the wall seven posters are stuck to inform about such an item as a day of the week to collect a certain kind of garbage and waste resources, and to warn residents about the illegal throwing away. One poster is written in English, because foreign residents increase in Minato ward. Garbage bags are covered by a net, which Minato ward government distributes to prevent crows from picking foods from garbage bags.



Dump Cars to Carry Garbage and Waste Resources: Left four photos are four kinds of large sized cars which we see often at Minato Cleansing Plant. The first photo from the top is a large sized dump car to carry the reloaded garbage to the plant, the second is a dump car of waste transport processors to carry garbage to the plant, the third is a large sized car to carry ashes from the plant, and the fourth is a road sprinkler. The photos on the right are twenty kinds of cars which are used at 23 wards. Four photos of the right bottom are a pusher purge, a deck purge, a barge and a ship to clean water surface (from left to right).

decreased by 20 percent. In July, 2006, and in October, 2008, the separate collection of plastic bottles and that of other plastic products started respectively. Under this separate collection many plastic products are recycled, by which the total amount of garbage dumped at landfills is reduced. Since fiscal 2012 the pick-up collection of fluorescent lights and metals including incombustible garbage and bulky garbage has been carried out.

In fiscal 2016 the pick-up collection of wooden products started.

In fiscal 2017 the total amount of waste resources and garbage collected in Minato ward amounted to 22,417 tons and 53,258 tons respectively (Minato Recycling & Cleansing Office: 2). Both numbers of the amount are stable for five years since fiscal 2013<sup>15</sup>, al-  
15 In fiscal 2013 the total amount of waste resources and garbage collected in Minato ward amounted to 22,709 tons and 53,246 tons respectively



Tickets of Carrying Fare: In case of bulky garbage residents contact the reservation reception by a telephone or an e-mail. An officer of the reception informs them of the carrying fare and the date for collection. Then, they buy tickets at some appointed place or store. On the reserved date they throw out bulky garbage stuck by the tickets in front of their house or office building.

though the total population increased from 231,538 in 2013 to 249,242 in 2017. More people living and working in Minato ward seem to share the idea of “3 Rs”. In Minato ward there are about 40,000 enterprises such as companies, restaurants and stores. Among all garbage, 66.3 percent, 21.2 percent and 12.5 percent were thrown out from large-sized enterprises, individual houses and small-sized enterprises respectively in the fiscal 2018 (Minato Recycling & Cleansing Office: 1). Although total population in Minato ward increased since 1996 the percentage of garbage thrown out from individual houses remains about 20 percent without increasing, which means that more residents accept the Idea of “3 R”.

At present people use a lot of paper. Especially, large-sized companies discharge a lot of paper after cutting by shredders in order to keep confidential. It is one main reason why approximate two thirds of garbage in Minato ward was thrown out from large-sized enterprises.

**Way to Collect Garbage**

Minato ward government collects garbage and waste resources thrown out from each household and small-sized enterprises<sup>16</sup>. In Minato ward there are 11,763

<sup>16</sup> Small-sized enterprises are obliged to buy tickets for disposing of garbage and to stick

collection spots, at which residents and small-sized enterprises carry garbage and the used waste resources before 8:00 a.m. in the morning (Minato Recycling & Cleansing Office: 4). Combustible garbage is carried twice in a week by small-sized dump cars from collection spots, while recyclable plastic products and other recyclable waste resources such as used papers, bottles and cans are carried once in a week separately. The incombustible garbage is carried twice in a month.

The Minato ward government is responsible for carrying garbage and waste resources from collection spots for residents, which is free in principle<sup>17</sup>. The carrying fare for small-sized enterprises is JPY400 per one kilogram. In case that residents and small-sized enterprises throw out bulky garbage, they have to pay the carrying fares.

Minato ward government set up boxes to collect waste resources such as caps of a plastic bottle, white trays, dry batteries, fluorescent lights and used clothes at such a place as the appointed stores and public buildings. The collected clothes with good condition are re-used. Some of them are sent to developing countries, in which people are willing to wear.

Minato ward government encourages such an organization in the community as a town association and residents’ association to collect waste resources in a lump. The percentage of waste resources by such collection in a lump amounted to 27 percent among all collected waste resources in the fiscal 2016 (Minato Recycling &



Minato Cleansing Plant for Incineration and Minato Recycling Center: Central photo is Minato Cleansing Plant for Incineration operated by Clean Authority in 23 Wards in Tokyo. Right photo is Minato Recycling Center managed by Minato ward government.

Cleansing Office: 18).

Article 3 of the Law on Waste Disposal and Cleansing prescribes that enterprises should adequately dispose of wastes generated from their business on their

them to bags containing garbage.

<sup>17</sup> In case of garbage and waste resources over 10 kilograms residents have to pay JPY400 (US\$ 3.6) per one kilogram.

own responsibility. Therefore, the large-sized enterprises are obliged to dispose of waste resources and garbage by themselves. Usually, they entrust the garbage disposal to waste transport processors licensed by the government.

### Disposal of Waste Resources for Recycling

Minato ward is responsible for disposing of waste resources for recycling. According to kinds of waste resources the route of recycling is different. Although waste resources are sorted in diverse ways, I would like to explain several main routes for recycling.

#### Route 1 for Combustible Garbage

Combustible garbage collected at collection spots twice in a week is carried to Minato Cleansing Plant for incineration. Japan is a society in which people live with affluent foods. Many eatable foods, especially those passing the expiration date for good taste are thrown out as garbage. According to the research conducted by Minato ward government in October, 2015, the percentage of foods among all thrown-out garbage amounted to about three percent (Minato Recycling & Cleansing Office: 3). By this phenomenon we know the loss of our traditional culture of “Mottainai”.

#### Route 2 for Incombustible Garbage

Incombustible garbage is carried to Minato Recycling Center. At the center they dispose of waste resources in different ways.

In case of cans they use a machine equipped with strong magnets, by which steel cans and aluminum cans are sorted. These sorted cans are sold to wholesalers. Then, the cans are melted at refineries. Mixed plastic wastes are carried on belts on which they are sorted by vibration and by wind blowing. After the sorting, recyclable plastic wastes are crushed and packed to send to another plant. After disposition at the plant, the packed ones are used as materials of chemical products.

At Minato Recycling Center the collected glass bottles are classified as returnable ones and other ones. Returnable glass bottles are sold to wholesalers to reuse after washing. Unreturnable glass bottles are sorted into three groups according to color, that is, transparent, brown and other colors. After this sorting the bottles are crushed into pieces in order to produce cullet. The cullet is sold to wholesalers as materials for the production of new glass.

To facilitate “3 Rs” the government introduce several policies, one of which is encourage of production of goods with eco marks. One of six eco marks is the mark



Mixed Plastic Wastes Sorted on Belts



Machine to Crush and Pack Sorted Plastic Wastes



Packed Plastic Wastes



Boxes for Returnable Glass Bottles: Minato ward government carries returnable glass bottles put in yellow boxes to the recycle center. These bottles are sorted and put in boxes of each company. Bottles for beer are put in boxes of such a company as Kirin and Sapporo (left of the picture). Bottles for Sake, Japanese liquor, are put in red boxes (center of the picture).

of a returnable glass bottle.

After the sorting most of waste resources are sold to wholesalers or sent to other plants for specialized recycling. A small amount of wastes is sent to the center for disposing of incombustible garbage. At the center the wastes are crushed from which such resources as iron

and aluminum are collected. The remained wastes are dumped at landfills.

**Route 3 for Bulky Garbage**

Bulky garbage collected from households and small-sized enterprises is carried by small-sized dump cars to Niihori Relay Station, at which the bulky garbage is sorted. Unrecyclable garbage is put in middle-sized cars with equipment to press it. By these cars the pressed garbage is carried to the Plant to Crush Bulky Garbage. Other garbage such as metal products and wooden furniture is carried to Minato Recycling Center.

In case of waste furniture, by the request of a resident officers of the center assess its condition. If the condition is good, the center takes over it with no charge. It is sold at an exhibition room at the center at a cheap price.

At the Plant to Crush Bulky Garbage they sort bulky garbage to combustible one and incombustible one, and crush to small pieces separately. Combustible garbage is carried to a cleansing plant for incineration. Crushed incombustible garbage is dumped at landfills.



Glass Bottle for Jam with Mark of Returnable Glass Bottle.



Exhibition Room of Used Furniture: Used furniture is exhibited at a room of Minato Recycle Center.

#### Route 4 for Used Paper

Used papers collected from households and enterprises are carried to paper wholesalers. At their plant the papers are sorted and pressed. The pressed papers are packed every one ton. The packed papers are sold to paper-manufacturing companies although some of the papers are exported to Asian neighboring countries. At a factory of the companies used papers are transformed into fibers, which are used as materials for the production of recycled papers.

This recycling system is well operated. However, the well operation depends on prices of used papers and recycled papers in the market. From this viewpoint the system may be greatly damaged by the recent decline of the prices. One reason of this decline is that Chinese government begins to suppress the import of waste resources including used papers. Another is the decline in consumption of used papers in Japan. Then, many paper wholesalers become difficult in maintaining their business (Nikkei Newspaper on February 15, 2020).

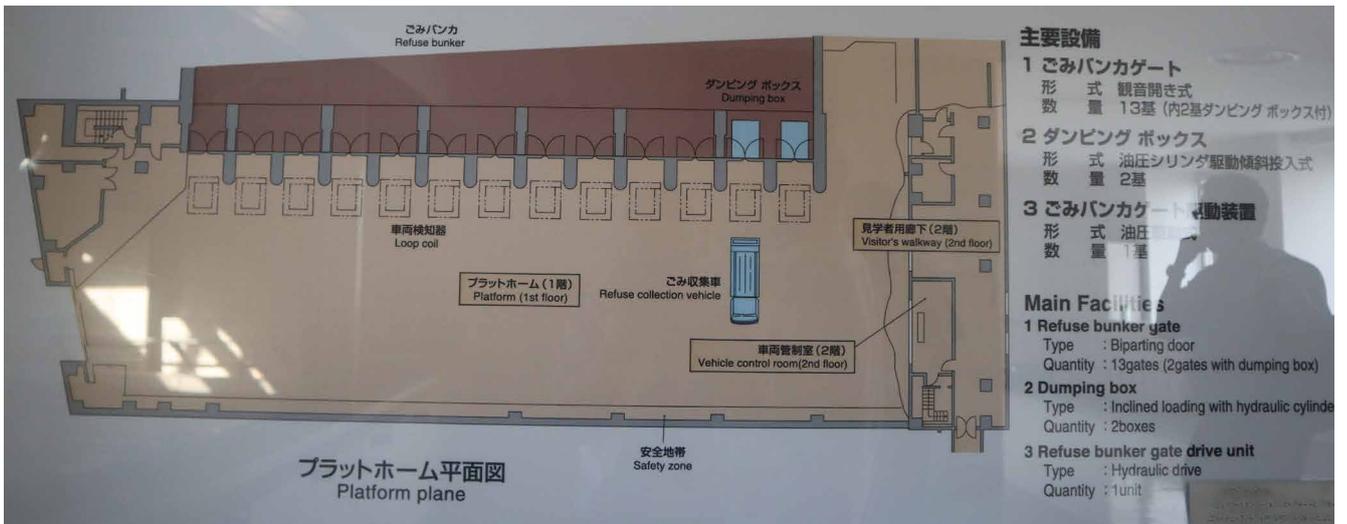
#### Garbage Disposal at Cleansing Plant

Since 2000 Clean Authority in 23 Wards has operated cleansing plants equipped with incinerators. In

December, 2018, the Clean Authority managed 19 cleansing plants, two facilities to dissolve ashes, two centers to dispose of incombustible garbage and a cleansing plant to dispose of human wastes in the territory of 23 wards in Tokyo (Clean Authority in 23 Wards in Tokyo: 6).

The flowchart of disposing of garbage in cleansing plants is the following:

- (1) Large-sized dump cars loading garbage are weighed just before entering the platform of a building for incinerators.
- (2) At the entrance of the building there are air curtains to prevent odor from emitting outside. Through the air curtains the cars enter the platform, from which garbage is dumped into a banker.
- (3) Garbage in a banker is scrambled up by a crane. The scrambled garbage is thrown into a hopper by the crane.
- (4) By fans fresh air is sent into the banker to blow the air with odor into an incinerator.
- (5) In an incinerator garbage is burned at higher than



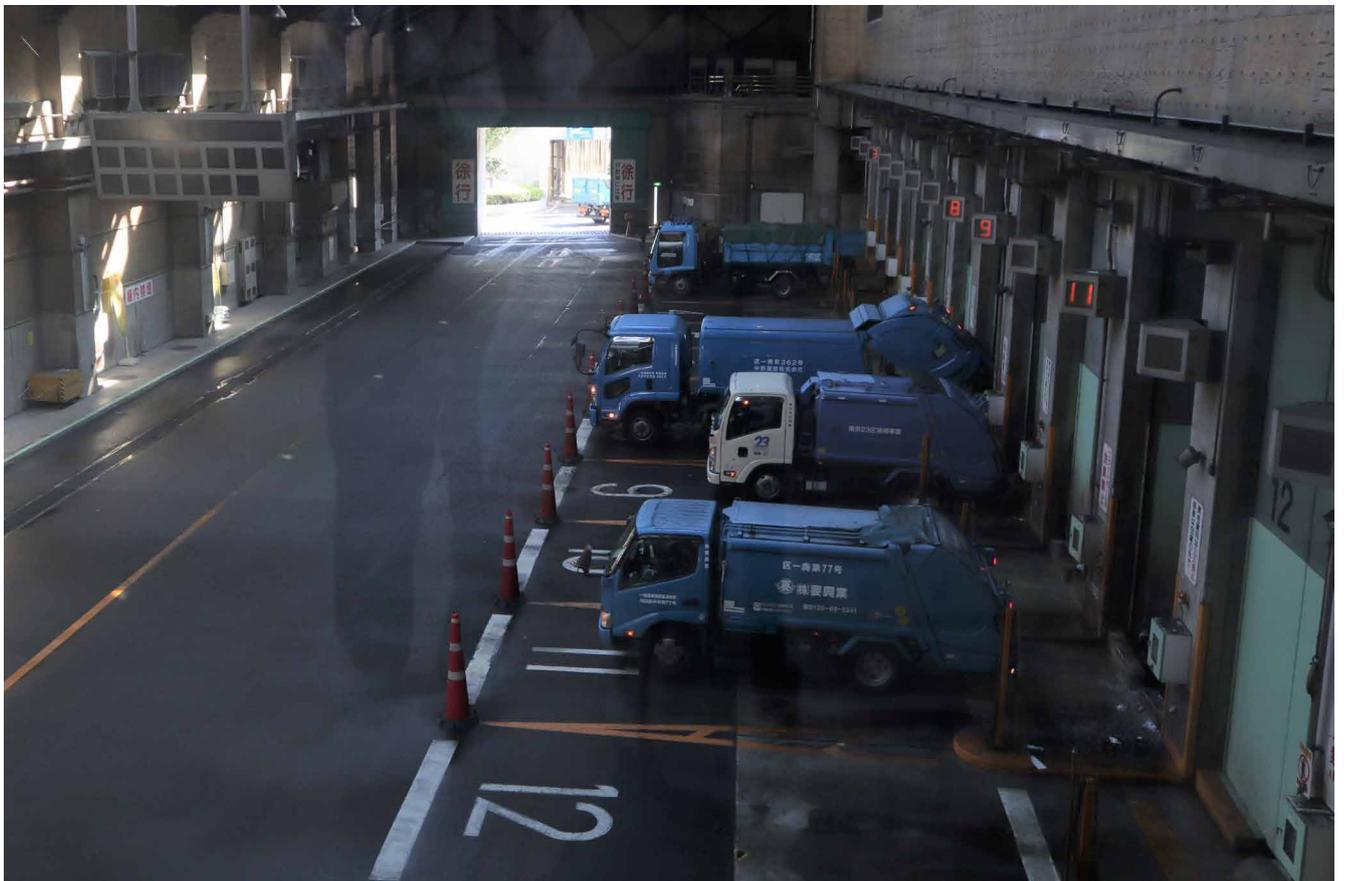
Platform Plane

800 degree centigrade, by which generation of poisonous substance such as Dioxin is prevented. Odor components in dirty air are broken down by the high heat.

(6) In an incinerator garbage is burnt for two hours. Heat generating in the incinerator is used to heat up a boiler. Steam generated by a boiler is sent to move a turbine, by which electric power is produced. Used steam is cooled by a condenser for re-use.

(7) The gas emitted from an incinerator is sent to a cooling tower. In the tower temperature of the gas is lowered to about 150 degree centigrade in order to prevent poisonous components from synthesizing.

(8) The cooled gas is sent to a dust collector with equipment for filtering, through which dust and soot, Dioxin, mercury, hydrogen chloride and sulfur oxides are removed separately.



Cars on Platform: In Minato Cleansing Plant for Incineration there are 13 banker gates, in front of which four cars station to fall garbage down into a banker.



Crane Controller: A man controls a crane to scramble garbage up and fall it into a hopper.

(9) The gas emitted from the dust collector is sent to a smoke washing equipment, at which mercury, hydrogen chloride and sulfur oxides are removed again separately by water containing some drugs.

(10) The washed gas is sent to a catalytic reaction tower to break down Dioxin and nitrogen oxide.

(11) The gas is sent to a chimney by the use of a fan. The gas with about 200 degree centigrade is emitted vigorously from a high chimney.

(12) Water thrown out from the cleansing plant flows to a sewer after removing solid substances and metals to a certain level prescribed by the law.

(13) After the disposal in a cleansing plant they have to dispose of two kinds of ash, that is, an ash remaining at an incinerator and a flying ash composed of fine particles. Ashes are temporarily preserved in an ash banker.

Some of ashes collected at the bottom of an incinerator are sent to cement factories since 2015. The total weight

of ashes reused as materials for the production of cements amounted to 16,580 tons at fiscal 2017 (Clean Authority in 23 Wards in Tokyo: 12).

Other ashes are sent to Tamagawa Cleansing Plant and Katsushika Plant for the reuse. At these plants, ashes are heated at more than 1,200 degree centigrade, and cooled down rapidly to make slags<sup>18</sup>. Slags are used as the materials for construction. The total weight of ashes reused as slags amounted to 12,120 tons at fiscal 2017 (Clean Authority in 23 Wards in Tokyo: 12).

Unusable ashes are dumped at landfills. The flying ashes collected at a dust collector are also dumped at landfills after detoxifying by the use of drugs.

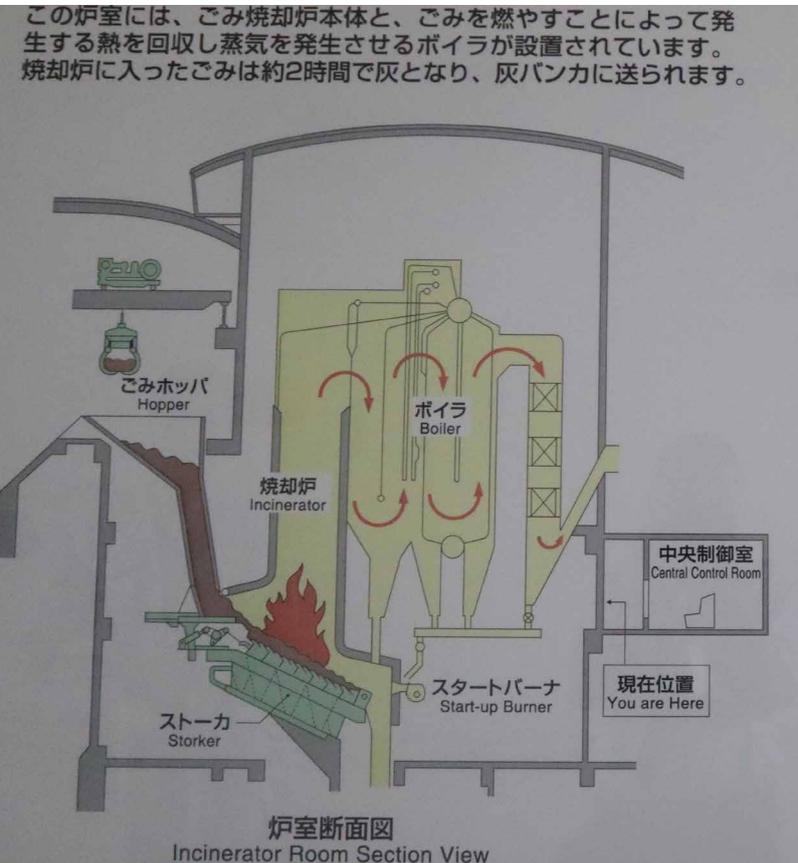
#### **Improvement of System and Technology on Garbage Disposal and Recycling of Garbage in Tokyo**

The total amount of garbage amounted to 2,765,568 tons in fiscal 2017 (Clean Authority in 23 Wards in Tokyo: 23). It decreased by 2.7 percent from fiscal 2011. Of all garbage in fiscal 2017, the percentage of garbage collected by the ward governments in 23 wards, and that

<sup>18</sup> At Setagaya Cleansing Plant slags are directly made in a gasification melting furnace.



Central Control Room: In the Central Control Room officers always monitor the condition of firing in an incinerator. Minato Cleansing Plant for Incineration has three incinerators, one of which stops to maintain the good condition. In the control room there are three large LCD screens to show firing in each incinerator. The left screen and the right screen show firing in No. 2 and No.3 incinerator respectively, while color in the central screen for No.1 incinerator is not red as it stops firing.



Incinerator Room Section View: From a hopper garbage slides down into an incinerator.

carried to cleansing plants or landfills by waste transport processors amounted to 64.5 percent and 35.5 percent, respectively. As compared to data in fiscal 2011, the former decreased by 7.5 percent while the latter increased by 7.5 percent. As large-sized enterprises have increased, the garbage thrown out from them becomes more serious. They should endeavor to reduce garbage, as more residents become to share the idea of “3 Rs”.

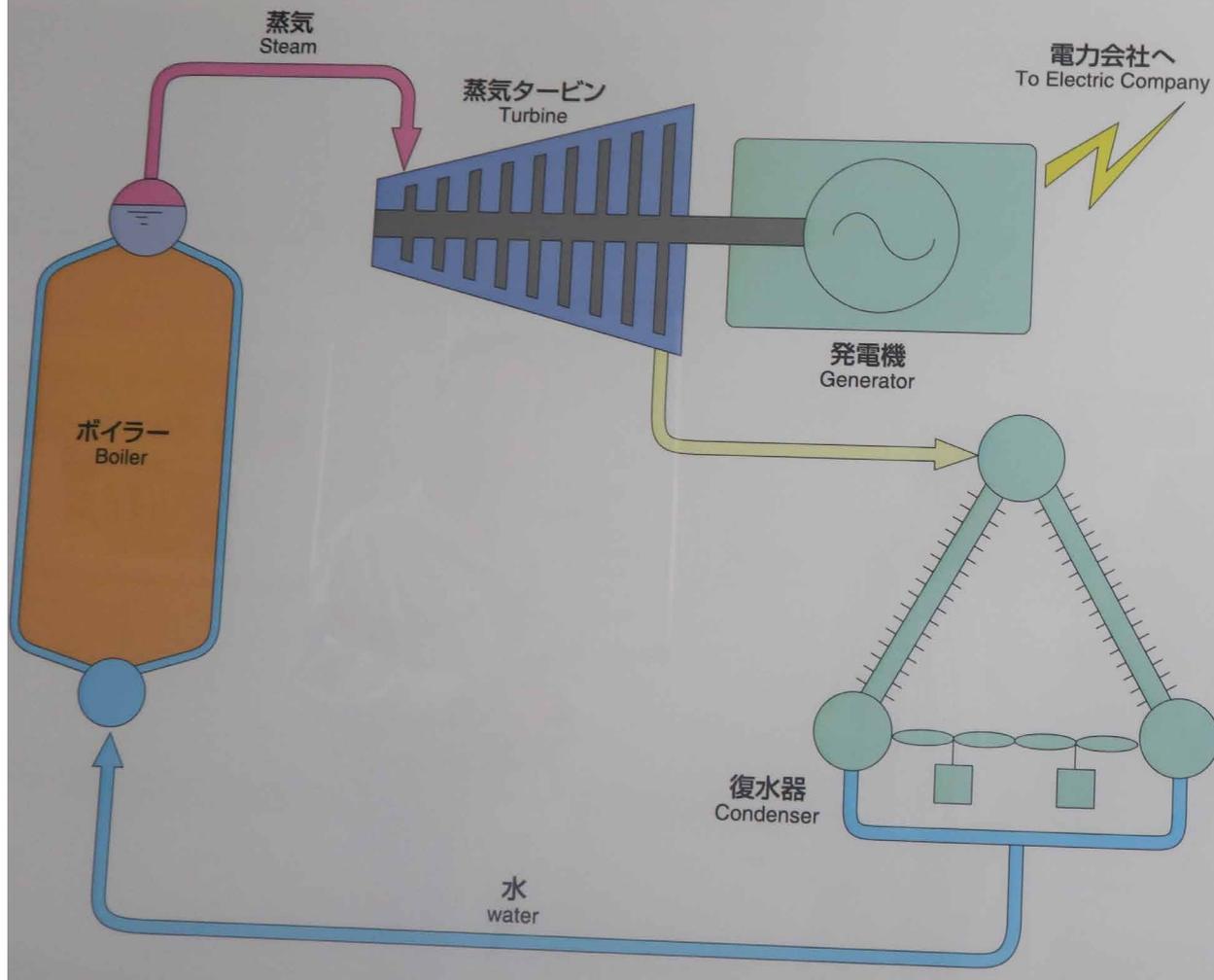
Of all garbage, the percentage of garbage dumped at landfills was 12.2 percent in fiscal 2017. This percentage declined from 14.7 percent in fiscal 2011, as more waste resources are reused and recycled. In Tokyo the improvement of system to dispose of garbage and waste resources, and the development of technology in cleansing plants and recycle centers contribute to reusing and recycling more waste resources.

### Problems about Garbage Disposal and Recycling of Garbage

#### Problems in Tokyo

In 23 wards in Tokyo the system to dispose of garbage and to recycle waste resources seems to operate well. However, one serious problem is the reconstruction of cleansing plants for incineration. For the reconstruction the Clean Authority in 23 Wards in Tokyo is obliged to

ボイラーで発生した蒸気で蒸気タービンを回して一般家庭の5万2千世帯分に相当する電気を発電します。電気はこの工場では使われるばかりでなく、電力会社にも送っています。



Generation of Electric Power: Generated electric power is sold to electric companies, although a part of it is used at Minato Cleansing Plant for Incineration.

make a plan on the community to facilitate the creation of a recycling-based society, and to present it to the Minister of Environment. After getting the approval of the minister, it consults the ward government, and holds meetings to explain residents. In consideration of residents' opinions, it decides the reconstruction plan under which an old plant is destroyed and a new plant is constructed. Environmental assessment is carried out not only during the reconstruction but also after the completion of a new plant. It takes about 10 years to complete a new plant (Clean Authority in 23 Wards in Tokyo: 26). In addition, the reconstruction costs a lot of money. Among 21 plants, 10 plants were constructed before 2000. Maguro Plant and Hikarigaoka Plant are under reconstruction. Edogawa Plant is preparing for reconstruction. However, other seven plants including Minato Plant completed in 1999 do not yet have a plan for reconstruction. A chief of Minato Plant told me that they

endeavor to use a current plant as long as possible by well maintenance. For this purpose, they stop each incinerator at least for one month in a year in addition to stopping to cope with an accident.

The most serious problem in Tokyo is to secure landfills. On Tokyo Bay there is no place for Tokyo Metropolitan Government to reclaim a new island by dumped garbage. They endeavor to dump garbage as little as possible to the last two landfills.

### Problems about System of Garbage Disposal and Recycling

In Japan local governments are responsible for garbage disposal and recycling of garbage. Therefore, there is big disparity in the system for garbage disposal and recycling according to the financial condition of each government. Minato ward government has the strong



Ash Banker Section View

financial power, by which its system for garbage disposal and recycling is a high-quality model in Japan.

### Illegal Thrown-Out and Collection of Garbage

Most residents observe a rule prescribed by each government about how to throw out garbage. However, someone violates the rule. In Minato ward garbage collectors do not carry garbage thrown-out illegally at collection spots into a dump car, and stick the warning label to it. It is difficult for them to find those who throw out garbage illegally. Therefore, they have to carry it at the next collection.

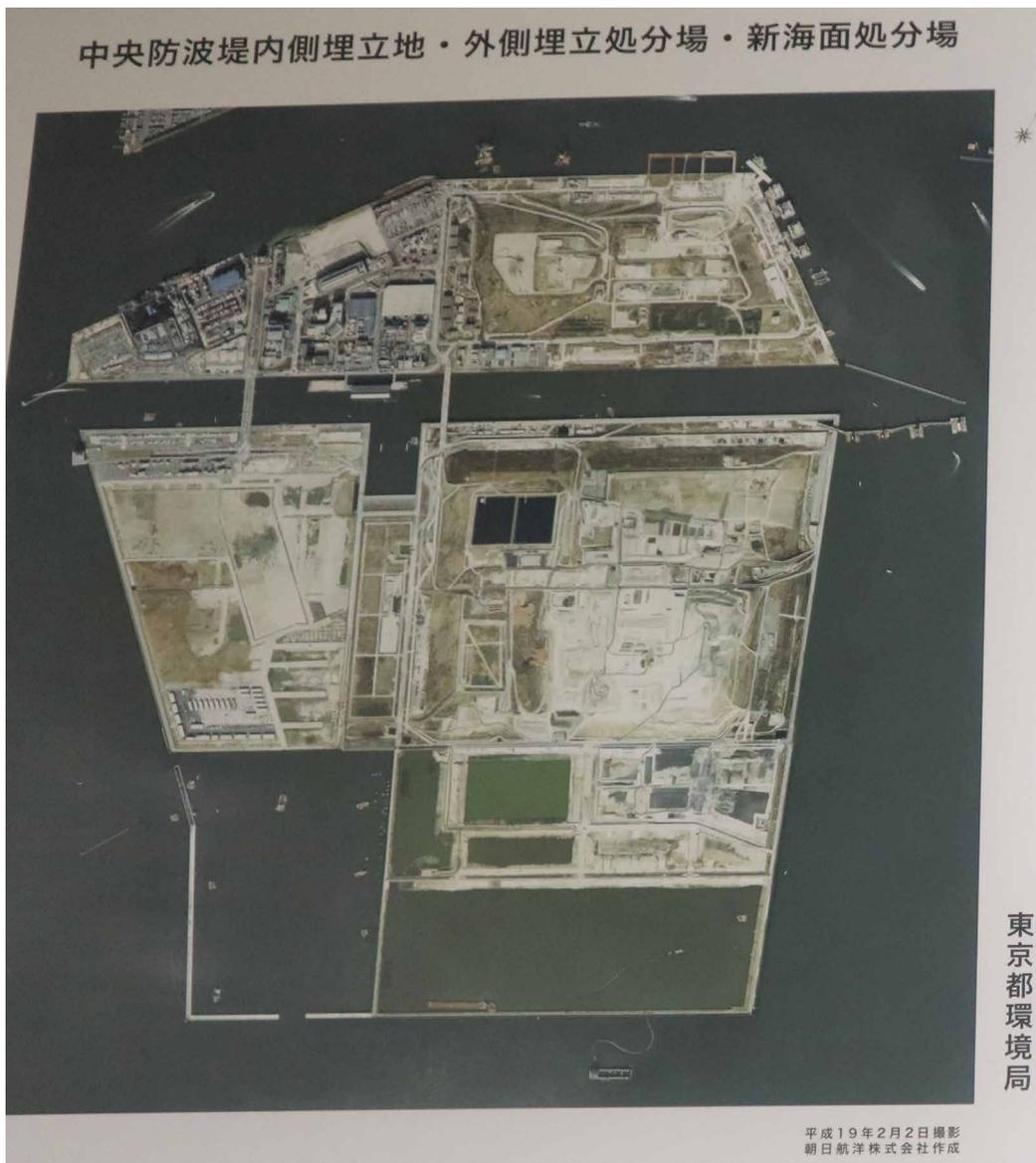
On a day when residents throw out waste resources such as cans, bottles and used papers, ragmen take them illegally in the early morning. However, their illegal business depends on the price of the waste resources. For example, as the price of used papers becomes lower recently, such ragmen seem to decrease.

Recently waste collectors advertise by the internet to

collect bulky garbage such as electrical appliances and furniture for free or at cheap fee. When they visit order's house to collect bulky garbage, they sometimes overcharge. Such a problem increases (Nikkei Newspaper on February 1, 2020). It is a kind of unscrupulous business practices which become prevalent in Japan.

### Illegal Dumping of Bulky Garbage

We witnessed a lot of illegal dumping of bulky garbage, especially industrial wastes during the period of rapid industrialization and prevalence of mass consumption. For example, illegal dumping of used vehicles became a serious social problem twenty years ago. According to the research in 2003 conducted by the Environmental Ministry the total number of illegal dumped vehicles amounted 168,806, among which 20,603 were dumped in isolated islands. To facilitate recycling of dumped vehicles Japan Automobile Recycling Promotion Center was founded in 2000. The center offers money to cover



Last Landfills on Tokyo Bay: One of the last two landfills on Tokyo Bay for Tokyo Metropolitan Government is the water areas surrounded by banks which is shown in the right of the bottle of this photo. The land areas in the island above this water areas is another last landfill.

up to 80 percent of costs which local governments pay to dispose of illegally dumped vehicles. Such subsidy system contributes to facilitating to recycle garbage.

In 1970 the Law on Waste Disposal and Cleansing was enacted. Since then the categories of offenses, especially those committed by waste transport processors have been widened, and penalties imposed on them have been heavier. With this criminalization the police have activated the raid. Therefore, the total number of cases of offenses of the Law on Waste Disposal and Cleansing received by public prosecutors' offices increased from 2,187 in 1990 to 8,869 in 2007, although it decreased a little to 7,128 in 2018. If the idea of "3R" were more prevalent, the illegal dumping of garbage would decrease.

### Globalization of Garbage Disposal

As the international interdependence increase, we should think about garbage disposal from the viewpoint of globalization. For example, in case of used papers the

recycling system functioned very well by exporting a certain amount of used papers to neighboring countries. However, in 2019 Chinese government decreased the quota to import used papers by 40 percent from the previous year. Therefore, price of used papers falls down, by which the business to collect waste papers in Japan declines (Nikkei Newspaper on February 2, 2020). It is a crisis of maintaining the well maintained system of the recycling of waste papers. In such a way the maintenance and development of recycling system depends on the international interdependence.

### Conclusion

Edo was a completely recycling society, in which people shared the culture of "Mottainai". However, during the period of high economic growth since 1955 people, especially those belong to younger generation abandoned this culture. Problems about the garbage disposal became serious. To resolve these problems, our lifestyle

must adjust to the idea of “3 Rs”.

To spread the idea of “3 Rs” the government carries out campaign actively. For example, Minato ward government publishes a booklet to explain the system on garbage disposal and recycling of garbage. The booklet is distributed to residents. As many foreigners begin to live in Minato ward, the Minato ward government publishes three versions of the booklet for foreigners, that is, those written in English, Chinese and Korean.

Clean Authority in 23 Wards in Tokyo offers an opportunity to tour in a cleansing plant. In Minato ward all pupils of fifth grade of public elementary schools are offered an opportunity to tour Minato Cleansing Plant for Incineration. By offering the good education programs on environmental problems children are expected to share the idea of “3 Rs”.

Environmental problems become global. For example, plastic products thrown away at seacoasts in China and Korea, flow to seacoasts in Japan. A lot of plastic pieces floating on oceans give damage to creatures living in sea. This problem begins to be discussed seriously at international conferences on environmental issues<sup>19</sup>.

I hope that practices on garbage disposal and recycling of garbage in Tokyo will give some suggestions for people living all over the world to realize a recycling society and a society with fewer emission of carbon to prevent global warming.

<sup>19</sup> On 7-8 June 2015, the meeting of the G7 heads of state and government was held at Schloss Elmau in Germany. At this G7 the problem on plastic garbage, especially plastic pieces floating on oceans was discussed. After this G7 Japan has taken initiative in research on floating plastic pieces. The research on quantity of floating plastic pieces will be conducted for three years together with ten countries such as China, the United Kingdom and Indonesia (Nikkei Newspaper on February 17, 2020).

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### **Minoru Yokoyama, Professor Emeritus of Kokugakuin University in Tokyo**

Minoru completed his B. A. in Law and M. A. in both Criminal Law and Sociology at Chuo University in Tokyo. He finished the doctoral course at Chuo University. He is a professor and former Dean of the Faculty of Law, and a former vice president of Kokugakuin University in Tokyo. He is a former 2<sup>nd</sup> Vice President of the Research Committee for the Sociology of Deviance and Social Control of the International Sociological Association. He is a former president of the Japanese Association of Sociological Criminology, a president of the Tokyo Study Group of Sociological Criminology, and a member of the directors' board of both the Japanese Association of Social Problems and the Japanese Association of Sociological Criminology. He is a member of Presidium of General Assembly of the Asian Criminological Society. He works as a vice-chair of Local Arrangement Committee, 16<sup>th</sup> World Congress, International Society for Criminology. He has presented numerous papers at national and international conferences and symposia, and had published numerous articles in professional journals.

# Take the Guesswork Out of Critical Infrastructure Cybersecurity

Saket Modi, Co-Founder and CEO  
at Safe Security



“The convergence of IT and OT has revealed more vulnerabilities in Critical Infrastructure”, says Saket Modi. (Source: Pixabay/Steve Buisinne)

**The disruption of critical infrastructure has a ripple effect on national and global economies and societies; directly impacting the sovereignty of nations and its people. When a Colonial Pipelines, Wolf Creek Nuclear Operating Corporation, or a Springhill Medical Center cyberattack happens repeatedly across the world, the entire critical infrastructure security ecosystem needs to be re-imagined.**

A modern-day cyberattack leverages vulnerabilities across the spectrum. Starting from employee social media reconnaissance, purchasing ransomware toolkits off the deep and dark web, leveraging cloud misconfigurations to move laterally within connected systems and networks, and targeting their efforts to compromise the most vulnerable vendors – cybercriminals are maximizing impact with minimum effort.

**When cyberattacks are so interconnected, then why is the cybersecurity of critical infrastructure siloed and reactive?**

The convergence of IT and OT has revealed more vulnerabilities in Critical Infrastructure. In previous years, cyberattacks on critical infrastructure typically required high investments, physical reconnaissance, and access to expensive operational technology. The isolated nature of this sector, yielding low output, ensured threat actors focused their energies on more ‘rewarding’ fields, often including financial services or healthcare.

As business demands for speed, efficiency, and interoperability increased, the critical infrastructure sector adapted. Most critical systems were extremely complex, to begin with, and this complexity is only increasing as the number of IoT devices and connections grows. Additionally, these systems are a mix of unsecured legacy systems and modern technology. The convergence of

Information Technology and Operation Technology systems in the critical infrastructure setup have made it a hotbed of cyber threats.

Especially in the Middle East that is at the forefront of 5G and IoT implementation, the pandemic added velocity to a change that was in motion. Transitioning to cloud-based technologies has created a 'Swiss Cheese' architecture with multiple entry points - employees are geographically dispersed, connecting to workloads and data that's now in a multi-cloud fabric. Additionally, customers and suppliers have changed the way they function. The number one issue with a vast digital footprint is the lack of real-time security visibility. Without the right knowledge of cyber risk, businesses are basing their cybersecurity strategies on reactive threat-driven strategies. This is similar to driving forward on a busy highway, while only looking at the rearview mirror!

According to Cybersecurity Ventures, global cyber-crime costs are expected to reach \$10.5 trillion annually by 2025. During the same period, global spending on cybersecurity products and services is projected to exceed \$1.75 trillion. This means for every \$2 spent on securing organizations, there is a loss of \$10. Unfortunately, organizations are stuck in a catch-22 scenario of being breached more often as they invest more in technology.

Businesses need a totalistic and contextual view of their cyber risk posture, and move beyond a product-focused approach and reactive cybersecurity. This is where cyber risk quantification (CRQ) can be a game-changer.

## Cybersecurity is all about knowledge

Cyber Risk Quantification platforms enable security leaders to take the guesswork out of cybersecurity by giving them sound data science-driven basis to measure, manage, and mitigate cyber risks. When a business knows the risks involved, they're able to make informed decisions about their cybersecurity initiatives.

Cyber Risk Quantification platforms generate a breach-likelihood score using data science-backed risk engines that can feed information-driven confidence to security teams. It aggregates signals across employees, technology, policies and processes, cybersecurity products, and third (nth) parties to generate a score. With it, security teams can locate where the weakest links lie across the enterprise in real-time. Not only does this help in timely prioritizing management and mitigation of cyber risks, but also informs the Board and other stakeholders about the efficiency of their cybersecurity strategy, products in use, and return on investment. How? Risk Quantification can represent the likelihood of breach as the financial impact of a breach on the overall business - immediately putting cyber risk in perspective to all relevant stakeholders.

Cybersecurity is like a game of chess, where the one with the knowledge and predictive power of the next move has the advantage. To date, cybercriminals have been one step ahead. To succeed, the national and international cybersecurity strategy for critical infrastructure protection (CIP) needs to be predictive and simplified. Cyber risk quantification can provide governments and businesses with the proactive knowledge to make the right move.

Take the example of the most recent instance of critical infrastructure cyberattack - the Colonial Pipelines ransomware. DarkSide's goal was not to disrupt the economy but to extort ransom. Cybersecurity experts said Colonial Pipeline would never have had to shut down its pipeline if it had more confidence and better visibility in the separation of its business network and pipeline operations.

The tactics, techniques, and procedures used by the new-age cybercriminal use the 'compromise-one-compromise-many' approach. As the lines between private and public blur in critical infrastructure, it is essential to proactively safeguard the information of citizens, ensure smooth functioning of all associated organizations, and finally, prevent large-scale disruption.

## About Safe Security

Headquartered in Palo Alto, California, Safe Security is a leader in "Cyber security and Digital Business Risk Quantification Management" (CRQM). It helps organizations measure and mitigate cyber risk in real-time using its ML enabled API-first SAFE platform. It automatically aggregates signals across people, process, and technology, both for first and third parties to dynamically predict the breach likelihood (SAFE Score), dollar value at risk, and a prioritized list of recommendations for the security team. The SAFE scoring model is built as joint research at MIT that incorporates cyber security sensors data, external threat intelligence, and business context and places it together in a Bayesian Network of a Supervised Machine Learning scoring engine to give out scores and dollar value risk that the organization faces. The scores are calculated both at a macro and micro level and can also be measured for particular Lines of Business/Crown Jewels/Departments.

For more information, please visit:

[www.safe.security](http://www.safe.security)



# Three Reasons you Should Put Network Security at the Heart of your Business Strategy

Jacob Chacko, Regional Director – Middle East, Saudi & South Africa at Aruba, a Hewlett Packard Enterprise company



"The cybersecurity risks around new technologies will be unbelievably high unless business leaders prioritise securing the network that powers them", says Jacob Chacko. (Source: Pixabay/Reto Scheiwiller)

**Cybersecurity continues to be one of the most significant risks facing businesses today. While it seems that we are hearing more and more about cybersecurity in the press, there has – till recently – been a misconception that it is an 'IT issue'. This is especially true when it comes to topics perceived as requiring technical expertise, such as the network.**

Security is increasingly becoming the key conversation I'm having with the customers and partners I visit across the region. With every sector now undergoing digital transformation, I'd urge senior business leaders, from the C-Suite to the board, to think differently about the network. It has a bigger security and business enablement role than you might imagine.

With that in mind, here are three reasons why you should put the network, and its security, at the heart of your business strategy.

## **New opportunities, new threats**

We released a report looking at networking on the edge – a new approach by which technology decisions are processed at the edge of a company's network, allowing things to happen more quickly and with less lag time for the user. One of the most exciting benefits of edge networking is how it can help businesses unlock new technologies like the Internet of Things (IoT), to create new customer and employee experiences.

IoT holds tremendous opportunities for businesses

but is also one of the biggest sources of concern among our customers. It is very much an emerging technology field, and devices are often not built with a security-centric mindset – even those destined for environments like healthcare and financial services, where physical and digital security is essential to operations. This is especially true of the increasing number of consumer devices that are popping up in the office environment – think of smart speakers and smart watches for example.

The cybersecurity risks around these new technologies will be unbelievably high unless business leaders prioritise securing the network that powers them. Organizations who focus on their network security today will be in a much better position to adapt securely to these new technologies, properly integrate them into the workplace, and ultimately reap the business rewards.

## Enabling the workplace of the future

Digital transformation is an undeniable force shaping businesses today. It's changing how businesses fundamentally work – from where their data is stored, to how their operations are run and where their staff are based. Moving to the cloud remains one of the top company priorities as part of this transformation, but business leaders should be thinking about their network as part of this move too.

While applications and storage have largely been moved to the cloud already, however, large, complex corporate networks are still primarily run on the premises. I'd wager that this is because companies perceive the risks involved in moving their network to the cloud to be too high – but this doesn't need to be the case if you build in the right level of security from the offset.

In the future, I believe we should be moving to an environment where both the network and its security are run from the cloud, with a single pane-of-glass view allowing teams to understand, manage, and protect what is happening.

As the network grows in importance, having this at a glance view of what is happening will become more and more vital. The physical nature of offices has changed dramatically in the past ten years, causing a greater emphasis to fall on the network to enable new types of working. From co-working spaces, to working from home or completely remotely, the new face of the workplace is well and truly digital – and well and truly dependent on the network.

Companies need to develop a security-first mindset and rapidly adopt these new ways of working in order to keep the next generation of employees engaged, and work with clients more effectively and efficiently. But before they do anything they must ensure that the network

keeps all of these people, data and processes safe and secure.

## Staying ahead of regulatory changes

Since GDPR came into force, we have now started to see real fines being implemented on businesses who aren't up to scratch. No matter how GDPR develops, cyber security will play a pivotal role in compliance.

Business leaders who have seen the impact of fines on other enterprises must now take an active interest in the way that data gets into and goes out of their businesses – the network. Security and IT teams can use the GDPR framework to better manage the collection and use of personal data while filling in potential gaps in their protection infrastructure.

## Security, more than an IT issue

No matter the size of your business, you either are, or shortly will be amid a full digital transformation. There will be an exponential increase in the amount of data going in and out, employees using personal and business devices in a myriad of locations, and consumers (and their regulators) keen to make sure you're looking after their information.

Whether or not you've realised it, the network is now the very backbone of your organization, serving as a structure, support and enabler of every business function and service you provide. It's time for business leaders to take an increased interest in making sure they protect this highly important asset.

### About Aruba, a Hewlett Packard Enterprise company

Aruba, a Hewlett Packard Enterprise company, is a leading provider of secure, intelligent networks that enable customers to thrive and deliver amazing digital experiences in the mobile, IoT and cloud era. They are changing the rules of networking to make it simple for IT and organizations to bridge the physical and digital worlds at the Edge.

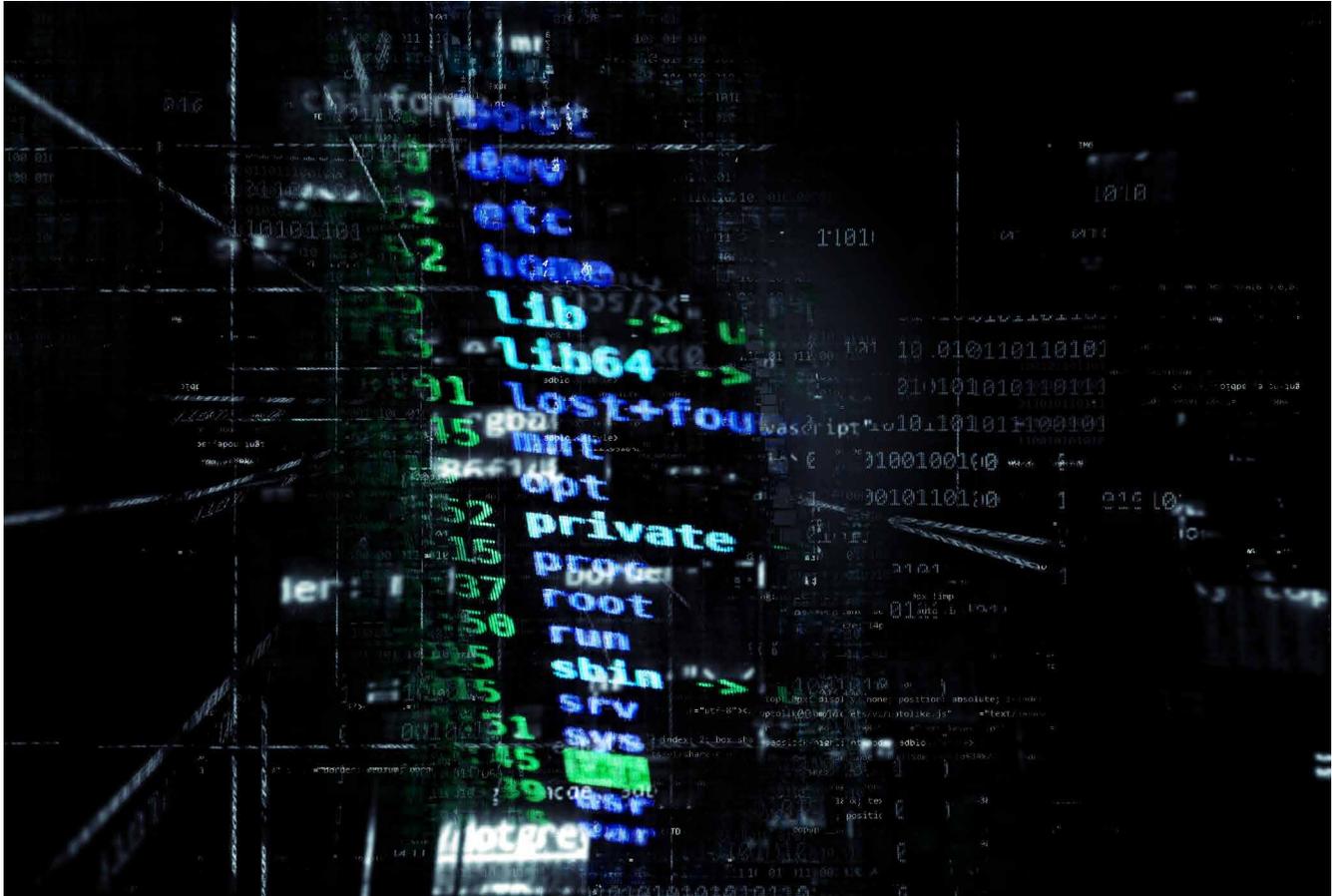
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# Building Trust in a Zero Trust Environment Availability

Gil Vega, Chief Information Security Officer at Veeam



„There are always going to be threats that penetrate a company’s layers of security“, says Gil Vega. (Source: Pixabay/Pete Linforth)

**A recent study by MITRE and DTEX revealed that despite years of industry efforts against insider threats, there isn’t enough data – or systems advanced enough – to spot all malicious behavior. As companies work to build a corporate culture of cybersecurity, they’ve begun investing in zero trust architectures to proactively cover all attack surfaces. While this is a step in the right direction, this security method also has the potential to raise fear and generate negative responses from employees.**

This is especially a concern amid the Great Resignation. Countless employees are leaving their workforce due to issues centered around work culture that no longer meets the demands of the modern employee. In fact, poor work culture is reportedly 12.4 times more likely than compensation to be the leading cause for turnover. If taken as a sign of mistrust and poor faith, zero trust security could spread resentment and demotivation among employees, potentially accelerating turnover rates and bringing the Great Resignation to its peak.

How can companies effectively navigate zero trust without creating friction among employers and employees? And how do they get there without the luxury of trust-building exercises in the close quarters of an in-office environment?

The thing is, zero trust doesn’t mean seeding mistrust throughout an organization’s networks. Companies shouldn’t have to rely on technologies alone for protection. Security is best applied when it’s a team effort. In other words, successful zero trust relies on a culture of transparency, communication, and consistency across the board. When appropriately understood and applied, these efforts can create a sustainable zero-trust work environment. So, how do we get there?

## Create a culture of transparency and communication

According to the World Economic Forum’s Global Risk Report, 95 percent of cybersecurity breach incidents are

caused by employee error. Humans are prone to clicking on phishing emails or unknowingly executing malware, rendering the entire company vulnerable to cyberattack. Zero trust security solves this problem by covering all attack surfaces, including the human attack surface.

But zero trust also raises questions around trust and faith between the company and its employees. Won't verifying every decision and every move create a 'Big Brother' culture of fear and paranoia? Most organizations struggle with this dilemma. But in fact, the solution – or part of it – is quite simple.

Even as companies begin implementing zero trust technology into their systems, they must also integrate it into their culture. Alert employees as to what's going on, what the process of zero trust entails, how it impacts and benefits them as well as the company, what to watch out for, and how they can support the zero-trust process.

By engaging employees and challenging them to embrace a healthy dose of skepticism towards potential threats, employers are planting the seeds of security across their organizational skeleton. Once employees understand what's going on and the value of zero trust, they too begin to feel trusted and are empowered to be part of the broader cybersecurity network. This pays in dividends as employees proactively identify insider and outsider threats to the enterprise, covering all surfaces and fostering good security hygiene.

### Implement briefings and continuous training

Part of the security culture-building process is reliant on ensuring employees always feel prepared. This includes sending continuous updates on accurately implementing zero trust and providing security training programs. It is not enough to say that x is good, and y is bad. People from different backgrounds are likely to have different interpretations of security mistakes and mishaps. While bad actors exist, most insider threats turn out to be accidental and unintentional.

By providing resources, including regularly hosting briefings, insider threat programs and cybersecurity awareness training at all levels – from the c-suite down to the intern cohorts – companies are more likely to see zero trust implementation unfold organically. With the right information followed by an "open door policy," employees will know they have safety nets to fall back on in case of error and will be well-versed in the host of security risks to watch out for and avoid.

There are always going to be threats that penetrate a company's layers of security. But if employees are trained in sustaining the company's security culture, then identifying and reporting these threats (be it a call, email, or text) will become second nature. Trained employees are empowered, and empowered employees

empower the company, protecting it against any and all potential breaches.

### Create tools and incentives for success

A culture of transparency and knowledge combined with trainings for preparation can help hone the skills that employees need for a successful zero trust environment. But when a culture of transparency may not be enough to keep employees motivated, introducing incentives for success can help.

Zero trust technologies deployed in an organization don't just have to keep a weather eye on the horizon. Try making their deployment fun. Many of these technologies rely on tech-adaptive authentication to allow employers to create a risk score based on how their employees use their devices. Have fun with these scores! Whether using them to help build healthy competition among employees or starting a rewards program based off top security scores, employers should look to incentivize participation.

By understanding user behavior, employers can also provide custom support tools and resources employees may need – be it VPN, encryption, more training, etc. Use of these varied tools will help organizations cover all attack surfaces and create stronger security hygiene for all. At the same time, incentives for getting or maintaining high security scores will motivate employees to continue using these resources and updating their security as needed.

While zero trust technologies are available to cover all attack surfaces and protect organizations, they mean nothing without the people using them, so aligning company success and security with employee success and security is critical. This means prioritizing a culture of transparency, open communication, trust in the process and faith in each other's ability to do good. This, complemented by continuous trainings to ensure everyone stays on the wheel and nobody gets left behind, and various technologies to cover all attack surfaces and ensure optimal protection, can help create a network of armed and trained employees to defend against threats now and in the future.

For more information, please visit:

[www.veeam.com](http://www.veeam.com)



# Expansion of the DFS Remote Tower Control Centre

## DFS controls traffic at Erfurt Airport from Leipzig



Pan tilt zoom camera at Airport Erfurt Weimar. (Source: DFS Deutsche Flugsicherung)

**Starting on the morning of 28<sup>th</sup> April 2022, air traffic at Erfurt Weimar Airport in the east of Germany is being controlled from Leipzig, around 100 kilometres to the southwest as the crow flies. Leipzig is the site of the Remote Tower Control (RTC) Centre of DFS, the German air navigation service provider. From here, DFS already successfully monitors air traffic at Saarbrücken Airport, hundreds of kilometres to the west near the French border.**

A sophisticated camera system on the Erfurt control tower ensures that the air traffic controllers can control traffic without needing to look out of the tower cab. High-definition video and infrared cameras deliver a continuous 360-degree view of the airport. Static cameras covering the apron and pan-tilt-zoom video and infrared cameras have been set up, allowing small details to be seen. The air traffic controllers have a much better view thanks to the infrared technology, especially at

night. The RTC system also allows aircraft and vehicle movements to be tracked manually or automatically, and highlighted on the monitors.

„Our remote tower control system exemplifies innovation, efficiency and our unchanged high safety standards,“ said Arndt Schoenemann, CEO of DFS. „The overall concept of infrared, colour sensor technology and automatic object tracking and detection sets us apart from other air navigation service providers. This gives us the most advanced remote tower technology in the world.“

DFS has already been successfully operating the RTC system for years. Air traffic at Saarbrücken Airport has been controlled from the Leipzig centre since December 2018. „Since then, more than 36,000 flights have been controlled and more than 600,000 passengers have been transported without any adverse impact on airspace users. We are proud of that,“ said Schoenemann.



The controller working positions for Erfurt Weimar Airport (left) and Saarbrücken Airport (right) in the Remote Tower Centre in Leipzig. (Source: DFS Deutsche Flugsicherung)

Prof Gerd Stöwer, Managing Director/CEO of the airport operator Flughafen Erfurt GmbH, also praised the use of RTC: „As an international airport, we support this innovative project to have air traffic control for take-offs and landings provided from a central location. By participating in this project, we are making a positive contribution to further increasing the efficiency of the German air transport system. Thanks to the use of state-of-the-art technology, air traffic control services in the terminal control area of the airport can continue to be provided safely. The existing excellent working relationship between the airport operator and DFS will be successfully maintained with RTC.“

Compared with the RTC system in use for Saarbrücken Airport, the one for Erfurt Airport was adapted only slightly. „It was important for us not to change anything fundamental. Basically, both systems should be as identical as possible to make the work easier for those controllers who will be trained for both airports in the future,“ explained Schoenemann. The next airport is already being planned. According to the latest information, Dresden Airport will also be monitored from Leipzig at the end of 2023.

Ten air traffic controllers currently work at the RTC Centre in Leipzig, having moved there from Saarbrücken in 2018. They are joined by all eleven colleagues who worked in the tower at Erfurt Weimar Airport.

DFS developed its remote tower system together with the Austrian high-tech company Frequentis, while the video and infrared sensors come from the German group Rheinmetall Defence Electronics. A joint venture was set up between the DFS subsidiary DFS Aviation Services and Frequentis for the national and international marketing of the DFS remote tower system. The joint venture is called Frequentis DFS Aerosense.

For more information, please visit:

[www.dfs.de/homepage/en](http://www.dfs.de/homepage/en)



# Airbus Lays the Foundations for Future Urban Air Mobility in Germany with the Air Mobility Initiative



Elevated view over Munich and the Marienplatz with the St. Peters church on the right, the Heiliggeist church and the snow covered Alps in the far distance. (Source: Airbus Helicopters)

**To contribute to the development of advanced air mobility, leading companies, universities, and research institutions as well as municipalities are joining forces under the leadership of Airbus to form the Air Mobility Initiative (AMI). The members of the Air Mobility Initiative include Airbus, City of Ingolstadt, Deutsche Bahn, Deutsche Flugsicherung, Diehl Aerospace, Droniq, Munich Airport, Red Cross, and Telekom.**

This initiative, which is supported by the Free State of Bavaria and the Federal Republic of Germany, will set up a series of research projects aimed at making urban

air mobility within and between cities a reality. The joint projects are centered around three main areas: electric vertical take-off and landing (eVTOL) aircraft, unmanned traffic management (UTM) services, airport & city integration including vertiports.

„In many parts of the world, eVTOLs will offer a whole new mobility service in the near future,” said Markus May, Head of Operations for urban air mobility at Airbus. „Airbus and the AMI partners are aware that the introduction of such a system requires the cooperation of many players with different competences. Our goal is to build a transport service that benefits society

and this is what we are setting up here in Bavaria.”

In a first step, the AMI partners will address the technological, infrastructural, legal, and social prerequisites for the future implementation of advanced air transport. Subsequently, the knowledge gained will be carried through a demonstration project under real conditions with eVTOLs.

Airbus is leading the vehicle stream together with Diehl Aerospace, University of Stuttgart and other partners. The UTM activities will deal with the safe and efficient flight of vehicles on their routes in and outside cities. This area is being advanced together with Droniq, Airbus, f.u.n.k.e. Avionics, SkyFive, BrigkAir, DFS, Telekom, Universities from Munich and Hamburg and other partners. Through the vertiport activities, AMI will work on take-off and landing sites for the aircraft as well as their integration into airports and cities. Munich Airport, Deutsche Bahn, Bauhaus Luftfahrt, Airport Nürnberg, Universities of Ingolstadt and Munich are responsible for this topic.

Work on the individual AMI projects began in January 2022. The test flights of the demonstration project will be carried out in the region around Ingolstadt. The initiative is funded with a total of € 17 million from the Free State of Bavaria and € 24 million from the Federal Government. Together with the industry’s own funds, this results in a total activity of € 86 million over a period of three years.

## The AMI partners in alphabetical order are:

Airbus, APSYS Risk Engineering GmbH, amd sigma strategic airport development GmbH, Bauhaus Luftfahrt e.V., Bayerisches Rotes Kreuz, brigk – Digitales Gründerzentrum der Region Ingolstadt GmbH, C-3 Comm Systems, DB Regio represented by Regionalverkehr Oberbayern GmbH (RVO), DFS Deutsche Flugsicherung GmbH, Diehl Aerospace GmbH, Droniq GmbH, EchoStar Mobile Limited, Flughafen Nürnberg GmbH – Airport Nürnberg, Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V., f.u.n.k.e. AVIONICS GmbH, HENSOLDT Sensors GmbH, Katholische Universität Eichstätt-Ingolstadt, Munich Airport International GmbH, Schwarzbild Medienproduktion GmbH, SkyFive AG, Skyports, Stadt Ingolstadt, Technische Hochschule Ingolstadt, Technische Universität Hamburg, Technische Universität München, Telekom Deutschland GmbH, Universität der Bundeswehr München, Universität Stuttgart.

### About Airbus

Airbus designs, produces, and delivers innovative solutions with the purpose of pioneering sustainable aerospace for a safe and united world – taking full advantage of its decades of experience and wide-ranging expertise.

Spanning the commercial aircraft, helicopter, defence, space, and security segments, the company’s cutting-edge products and services are relied upon by customers around the globe – with new Airbus innovations constantly in development.

For more information, please visit:

[www.airbus.com](http://www.airbus.com)



# Quieter Helicopters for Greater Operational Safety

## DLR measurement campaign with the German Armed Forces



H145M helicopter during research: The measurements were carried out at the Bundeswehr airfield in Manching (Bavaria). The H145M helicopters followed different flight paths. (Source: DLR)

**Helicopters can take off and land vertically or hover in the air. This gives them a number of advantages over fixed-wing aircraft. The disadvantage is that they are relatively noisy. With that in mind, the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) is working with German Armed Forces Operations Command (Einsatzführungskommando der Bundeswehr) to investigate how noise propagates from helicopters and what changes might be possible. The results of this collaboration are intended to increase the safety of armed forces personnel during deployments.**

Noise from helicopters in flight is often audible from a great distance. The sound propagation also depends on the speed, the rate of climb or descent, and the weight of the helicopter. “In addition, there is a significant directional characteristic. This means that a helicopter tends to be perceived as creating more noise in one direction compared to another,” says Project Manager Jurrien Olsman of the DLR Institute of Aerodynamics and Flow Technology in Braunschweig. This directionality changes along with the flight conditions.

In forward flight, for example, a helicopter tends to radiate more noise forwards. DLR researchers carried out flight tests and measurements in cooperation with Bundeswehr Technical Center for Aircraft and Aeronautical Equipment (Wehrtechnischen Dienststelle für Luftfahrzeuge und Luftfahrtgerät; WTD 61) and pilots from Helicopter Squadron 64 at Manching Airfield (Bavaria). An H145M helicopter from the German special forces followed a number of different flight paths as part of the research while carrying various payloads. Based on the measurement data, the project participants are developing a new digital model for visualising sound radiation in further studies. Acoustic datasets for other Bundeswehr helicopters will also be created. These digital models can then be used, for example, to optimise flight profiles and estimate response times in processes such as operational planning.

For more information, please visit:

[www.dlr.de/EN](http://www.dlr.de/EN)



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# Emergency Preparedness for Older Adults

Canadian Red Cross

Red Cross releases Guide



Home fires: House fires are one of the most common emergencies experienced by Canadians in their home - and many of these fires occur in the winter months. Taking proper precautions can help prevent fires, and can help keep you and your family safe in the event of a house fire. (Source: Canadian Red Cross)

**In May 2022, the Canadian Red Cross released their Emergency Preparedness for Older Adults Guide as part of national Emergency Preparedness Week. The guide was created in collaboration with the National Institute for Aging as a resource to help seniors be prepared for an emergency.**

Older adults consistently experience the highest level of impact during and after emergencies. Natural events, such as flooding, ice storms, heat waves and other disasters can severely affect older adults as they are more likely to have issues with heating and air conditioning equipment, less optimal housing conditions, and poor coordination between emergency, health, and social services.

A disaster or an emergency can happen at any time, sometimes without warning, so it's crucial for individuals and families, especially those with older adults, to be

prepared before an emergency happens. The guide outlines what Canadians need to prepare for before, during, and after an emergency.

"It is very important for older adults and their families or caregivers to create a plan before an emergency or disaster strikes," said Melanie Soler, vice-president of emergency management for Canadian Red Cross. "There are three main considerations for people when it comes to emergency preparedness, which are to know the risks, make a plan, and build an emergency kit."

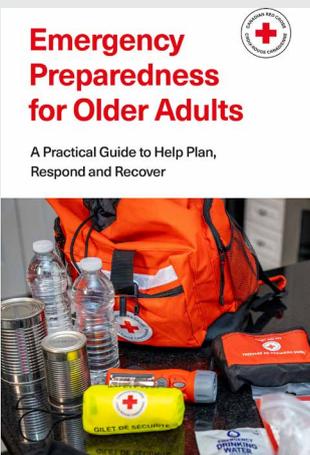
The guide details how to assess an older adult's medical, physical and cognitive needs that may affect their ability to respond to a disaster or an emergency. It also outlines the importance of identifying helpers and building a support network of family, friends, neighbours, carers and health professionals who can assist during a disaster or emergency. A list of items and documents to



Gatineau tornado: Volunteer Yves St-Onge and Red Crosser Carl Boisvert in Gatineau, Quebec, where a tornado touched down, destroying homes and buildings, and leaving thousands without power. (Source: Canadian Red Cross/Mathieu Girard)

prepare in the case of evacuation, and what to do once the recovery process begins are also outlined in the guide.

“We hope older adults and their caregivers will take the time to review this guide and implement the suggestions, as some preparation in advance of an event could help to mitigate potential harm and distress that could come from an emergency or disaster,” said Soler.



For more information, please visit:

[www.redcross.ca/ready](http://www.redcross.ca/ready)



For mor information on the guide, please visit:

[www.redcross.ca/crc/documents/Emergencies-Guide-for-Older-Adults\\_web.pdf](http://www.redcross.ca/crc/documents/Emergencies-Guide-for-Older-Adults_web.pdf)



# Ukraine: Thousands in Need of Help in Irpin as ICRC urgently Seeks to Deliver Aid

International Committee of the Red Cross



Photos showing scenes in Irpin. (Source: ICRC)

**Irpin, once a commuter city in the Kyiv region, is now smoke and rubble with only the most vulnerable people still living there. Those who could leave the city fled in a rush. There is a long line of abandoned cars in front of the bridge in Romanivka, the main route out of the city. On Friday (1 April 2022), the International Committee of the Red Cross (ICRC) managed to visit Irpin, which normally has a population of around 60,000 people, to help the thousands of people still trapped. They are the homeless, the elderly or those with limited mobility.**

ICRC's Alyona Synenko said: „We think there might be 3,500 people and the priority is to see what the situation is like for them right now.“ The city's pastor, Michail, guided the ICRC team. “Water is a huge problem,” he

said. „People are getting water from the wells, wherever they can still find it.“ The ICRC will be supporting the Water Board to restore the water supply system to the entire city. Many are trying to survive in their damaged houses. They need water, food and generators to charge their phones.

In its first visit to the city since the escalation, the ICRC delivered food, and hopes to return with more essential supplies on Monday and Tuesday (4 and 5 April). This will most likely include plastic sheets and tarpaulins for quick repairs to houses. However, it is only possible to enter the town in land cruisers. Trucks are too dangerous due to the many unexploded ordnance that litter the streets.

The military hospital has been heavily damaged and is empty. The only medical professional left in the area



Photos showing scenes in Irpin. (Source: ICRC)

is an ophthalmologist who is now treating war-wounded patients. The ICRC medical team in Irpin provided first aid to people and the team evacuated one homeless person in a critical condition.

The man had spent many days without food and has advanced gangrene on both legs. It is not a war-related injury, but because of the conflict, he had not been able to reach a doctor. He was taken to a safer area where there was a SESU ambulance (State Emergency Service of Ukraine). The ICRC will aim to evacuate more critical medical cases in the coming days.



### About the International Committee of the Red Cross

Established in 1863, the ICRC operates worldwide helping people affected by conflict and armed violence and promoting the laws that protect victims of war. A neutral, independent and impartial organization, its mandate stems from the Geneva Conventions of 1949.

For more information, please visit:

[www.icrc.org](http://www.icrc.org)



Photos showing scenes in Irpin. (Source: ICRC)

# Ukraine: ICRC witnesses Scenes of Devastation in Bucha

International Committee of the Red Cross



Photos showing scenes of destruction in Bucha. (Source: ICRC/Alyona Synenko)

**On April 5, 2022, an ICRC team visited Bucha. They saw devastating scenes of destruction. They saw people in desperate need of basics for survival. They saw streets littered with unexploded ordnances.**

People they met were deeply traumatized. When they started to talk to someone, people immediately begun crying. One man hadn't slept for a month and a half. It's difficult to comprehend what people have endured.

The most vulnerable people, like the elderly, the sick, and people who can't go anywhere are alone in their apartments with no heating, no water, and no electricity. Those that can build a fire collectively in the street and cook outside. They bring this food to people who need support.

You can see a lot of unexploded ordnances on the streets. Our weapons contamination specialist marked a number to let people know not to come near them. They could kill people, leaving people with life-altering injuries, and must be removed. Our team brought food, water, and some relief items like tarpaulins, and will

continue to provide support to the community.





Photos showing scenes of destruction in Bucha. (Source: ICRC/Alyona Synenko)



Photos showing scenes of destruction in Bucha. (Source: ICRC/Alyona Synenko)

# Ukraine: ICRC Evacuates 11 Extremely Vulnerable Civilians from the Frontline

International Committee of the Red Cross



Photos showing evacuation of eleven vulnerable civilians from the frontline in Severodonetsk. (Source: ICRC)

**On April 11th, 2022, a team of the International Committee of the Red Cross (ICRC) and the German Red Cross (GRC) evacuated 11 extremely vulnerable civilians from a shelter in the frontline city of Severodonetsk. The people evacuated today are severely sick, have physical disabilities, or are suffering from chronic diseases. They had lived in the shelter for a month.**

“Today we evacuated from Severodonetsk eleven people, mostly elderly. They were staying in the shelter for more than one month. They have terrible conditions. Living conditions as well. Most of them are very vulnerable, because of different diseases, chronic diseases. And they were suffering. That’s why we took a decision

to bring them to Dnipro. In Severodonetsk the security situation was quite tense. It was quiet at the beginning. But after, when we started talking to people and bringing them to our land cruisers, the situation became quite tense. We heard shelling and quite heavy shelling,” said Yana Antanova, a health field officer for the ICRC.

The ICRC has been working in Ukraine since 2014, supporting people affected by conflict. Since the recent escalation of the crisis, we have brought over 700 tons of medical supplies, food and relief items into the country to respond to skyrocketing humanitarian needs. We will continue to scale up our work and now have teams in 10 locations across the country.



Photos showing evacuation of eleven vulnerable civilians from the frontline in Severodonetsk. (Source: ICRC)

# Eurosatory 2022

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Eurosatory – the world's leading land and air defence and security exhibition.

**The Ukrainian crisis, which reflects the shift from asymmetric fighting to high-intensity interstate conflict, is leading EU member states to decide to invest more in their defence and security capabilities. Several countries have already significantly increased their budgets.**

Besides Europe, many countries are reflecting on this paradigm shift, which requires a rethinking of the models and capabilities of their armed and security forces in order to adjust to new threats.

EUROSATORY 2022, the world's leading land and air defence and security exhibition, will be held from 13 to 17 June in Paris - France. It can directly and practically contribute to these reflections and perspectives through the very wide range of solutions presented, covering the entire spectrum of capabilities, from proven equipment to the latest technological innovations.

EUROSATORY will also be a privileged place for exchange, notably through the numerous conferences hosted and the large number of official delegations and experts attending.

Now, three months away from the event, in a context of regression of the COVID 19 pandemic and lowering of sanitary restrictions in France, EUROSATORY continues to expand with already more than 1,200 exhibitors from sixty countries registered, large groups, SMEs and start-ups. EUROSATORY is shaping the future of land and airland defence and security.

For more information, please visit:

[www.eurosatory.com](http://www.eurosatory.com)





Exhibitor at the Eurosatory 2018.



Exhibitor and visitors at the Eurosatory 2018.

# Milipol Qatar 2022

Secure Major Event Delivery Key To Qatar's Sporting Events Ambitions



Milipol Qatar – the international event for homeland security and civil defence.

**Qatar's sporting ambitions are expanding. As the country enters the eight-month countdown to hosting the FIFA World Cup 2022 this November – the first Arab country to host the globe's biggest sporting event – its major sporting events calendar is filling up with the Qatar MotoGP – one of the most spectacular events on the MotoGP™ calendar – the Qatar F1 Grand Prix, which begins a 10-year run in 2023, the 2030 Asian Games and hopefully the 2032 Olympic Games if the government's bid wins hosting rights. All are key to the economic development aims of Qatar Vision 2030 and will positively impact inward investment into the country, its real estate and tourism industries.**

Its ambitions, however, means all eyes will be firmly fixed on the safe and secure delivery of this year's FIFA World Cup, when the FIFA Tournament Time Demand Model (TTDM) forecasts indicate that upwards of 1.7

million people could visit Qatar during the tournament with approximately 500,000 visitors in the country on the busiest days, as well as the government's handling of legacy issues and infrastructure.

## Safety of major events

Safety of major events then is uppermost in Qatar's mind and has seen the country demonstrate just how serious it takes the issue by joining China and Korea in funding the creation of the UN's 'Guide on the Security of Major Sporting Events: Promoting Sustainable Security & Legacies. This weighty 181 page document outlines all the aspects for safe and sustainable delivery of major sporting events and covers all eventualities from realizing initial ambitions, setting realistic expectations in terms of the human security resources, both public and private, that will be needed and supported by advanced

technology, such as drones, facial and identity recognition, cybersecurity, video surveillance, communications, management of secure visitor flows from arrival points to stadiums and throughout the host destinations and the management of the many tons of equipment needed to mount events which will put the hosts on the world stage.

### Leadership and vision

Leadership and vision, says the guide, are fundamental to safe and sustainable major event delivery with security needing to be placed in the hands of experts with proven track records of ethical and moral behavior and today that also means demonstrating the human resource function is fully committed to the values of diversity, inclusiveness, and racial equality. The co-ordination plan has to be inclusive too, taking in a host of government departments from sport to justice and defense, security to treasury, transportation, health, foreign affairs and more. Experts need to be drafted in to deliver specialized training.

### A number of threats

The guide identifies a number of threats that organizers and security planners of major sporting events need to

assess and prepare for including, terrorist attacks on critical infrastructure, offences against public order, organized crime, corruption and increasingly, cyberattacks. Today no major sporting event can be organized without a high degree of reliance on computer and networking technology. Unfortunately, despite the interconnectivity the technology delivers, it also comes with a high degree of risk not least of which is the reputational damage a successful cyberattack can unleash on the host destination's global image. Vulnerabilities can be exploited by malicious actors so key to the success of an event is the ability to mitigate any impact of cyberattacks.

### Homeland security market growth

Qatar's investment in safe and secure major events delivery is playing a key role in driving Middle East homeland security market growth by 14.5 percent currently – three times the world average, according to Market Watch – and the Middle East & Africa cybersecurity market to a forecasted Modor Intelligence value of \$2893.40 million by 2026 representing a compound annual growth rate 7.92 percent.

The UN report advises policymakers of host countries to implement various international instruments and tools aimed at preventing and combating criminal conduct. Moreover, bringing safety plans bang up to date



Milipol Qatar: Exhibitors and Visitors from the previous edition.



Exhibitors at Milipol Qatar

also means taking into consideration the impact of Covid-19 on the security of major sporting events. This requires a rethink of crisis and disaster contingency planning and seeking the guidance of international health and sports government bodies.

Legacy considerations are key to major event hosts – they can make, or break, bids for future events, impact local and international perceptions on the value of hosting. So, strategies, infrastructure, policies, and institutional arrangements must be in place for a major event to have significant – and produce positive – systemic social and economic impacts beyond the event itself. Security infrastructure and measures also have legacy impact on civil defense and homeland security well beyond the sporting arena. Major sporting events, for instance, can spur the development of security technologies, including traffic surveillance systems in major urban centers. The UN guide recommends we view major sporting events as ‘laboratories’ for the launch of new security systems and also speed up the adoption of international standards on community policing matters and security.

Major sporting events may come and go, but their impact can be long lasting. Qatar’s global sporting ambitions are now known worldwide and have led to a surge in security systems, consultants, infrastructure developers, technology providers and others involved the delivery of successful international events boarding plans for Doha to display their wares and expertise at Milipol

Qatar – the region’s only dedicated event for the civil defense and homeland security industries. They and Qatar know there is much at stake. When the final whistle blows on the FIFA World Cup 2022 fans throughout all corners of the globe will be vocal in their verdict of whether Qatar delivered to expectations – and that will no doubt feed into the event pitches of the future.

#### Save the date

24-26 May 2022

Doha Exhibition and Convention Centre (DECC)  
Halls 4 & 5A

Tuesday 24 & Wednesday 25 May – 10:00-19:00

Thursday 26 May – 10:00-18:00

(Source of pictures: Milipol Network)



For more details on Milipol Qatar 2022, please visit:

[www.milipol.com](http://www.milipol.com)



## About Milipol Qatar

The Milipol Qatar exhibition is being held every even-numbered years under the authority of the Prime Minister and Minister of Interior of Qatar, H.E. Sheikh Khalid bin Khalifa bin Abdulaziz Al Thani.

A must-attend event for security professionals – in 2021, the show welcomed:

- 150+ exhibitors from 17 countries,
- 7,924 security professionals from 63 countries,
- 241 official delegates,
- 261 journalists.

The event is known for the professionalism and the quality of attendees, for showcasing the latest innovative products and services and for covering all fields of public and industrial security. Milipol Qatar provides access to the Middle East security markets and enables key international industry players to meet in a fast-developing environment with medium- to long-term economic and strategic projects.

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**Publisher:** Dr. Nadine Seumenicht

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### Publishing House:

HOMELAND SECURITY UG  
(haftungsbeschränkt)  
Deilinghofer Straße 2, D-58675 Hemer, Germany  
Tel.: +49 (0)2 01 / 79 87 89 87  
Fax: +49 (0)2 01 / 79 87 89 88  
redaktion@homeland-sec.de  
www.homeland-sec.de

### Single price:

10,- EURO (incl. 7% VAT and delivery within Germany)

### Annual subscription:

18,- EURO (2 issues a year)

Aktion Deutschland Hilft e. V. benefits with 1,- EURO per subscription.

### Circulation:

16,000

ISSN 2193-0821, Issue 1

### Picture credits:

Cover: Airbus Helicopters

Airbus Helicopters, Canadian Red Cross, Canadian Red Cross/Mathieu Girard, Comexposium Security, DES Deutsche Flugsicherung, DLR, Eurosatory, International Committee of the Red Cross (ICRC), ICRC/Alyona Synenko, Milipol Network, NATO exhibition, Pixabay, Pixabay/Steve Buissinne, Pixabay/Reto Scheiwiller, Pixabay/Pete Linforth, Prof. Dr. Minoru Yokoyama

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**14<sup>th</sup>**  
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