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The Metropolitan Area Outer Underground Discharge Channel, a flood countermeasure facility in astern Saitama Prefecture 埼玉県の東部にある、 洪水対策施設 「首都圏外郭放水路」

の共同通信社/amanaimages

SUMITOMO QUARTERLY WINTER 2016/2017 No.147

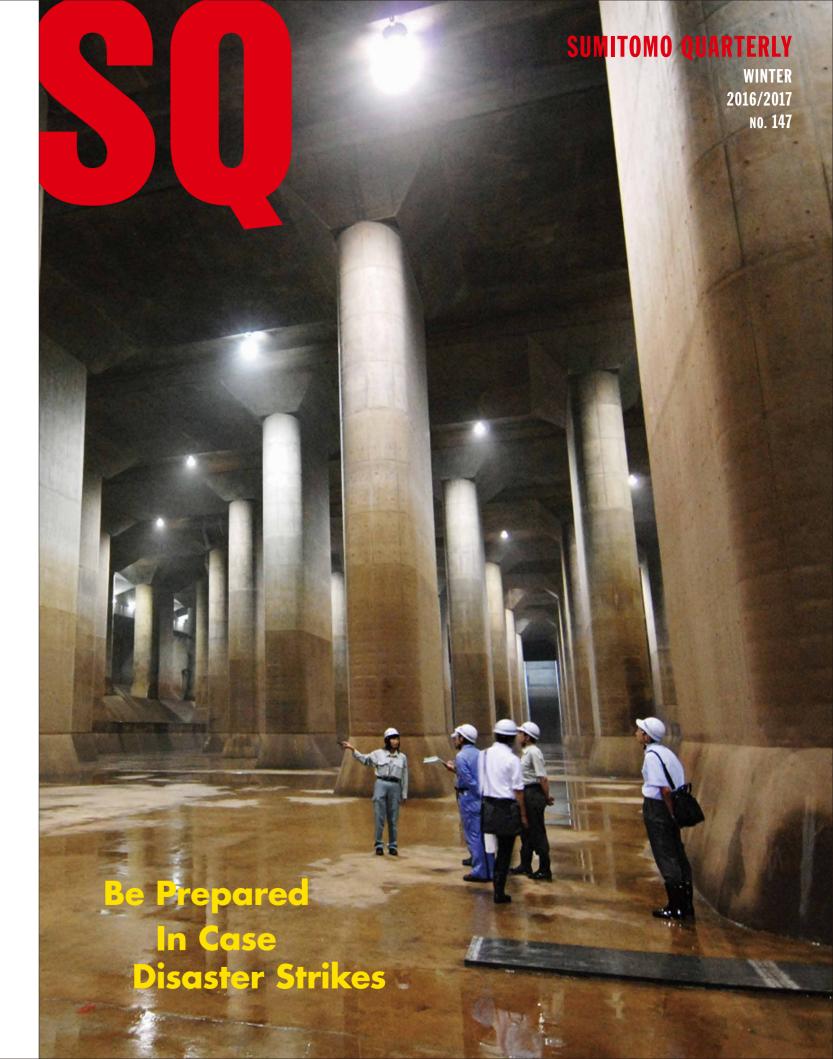
Publisher: Sumitomo Group Public Affairs Committee Planning & Editing: Nikkei BP Consulting, Inc. Printing: Dai Nippon Printing Co., Ltd. Design : BOLD GRAPHIC

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発行:住友グループ広報委員会 編集協力:日経BPコンサルティング 印刷:大日本印刷 デザイン:ボールドグラフィック ©住友グループ広報委員会2017 本誌記事、写真、イラストの無断転載を禁じます。







Contents

- 2 Our Aspirations Sumitomo Life Insurance
- 4 Be Prepared In Case Disaster Strikes
- 12 Tomohiro Nakamori's Insights
- 14 Illustrator Masako Fujii Visits Sumitomo Group Safety Education and Training Using Virtual Reality
- 18 SUMITOMO'S MODERN **DEVELOPMENT**
- 20 News & Topics
- 23 Oh! BENTO!! Masaki Kuriyama

Sumitomo Riko

- 2 叶えたい未来がある 住友生命保険 須之内 たか美さん
- 4 災害に備える
- 仲森智博の未来新聞
- 14 漫画ルポライター ふじいまさこの住友グループ探訪 VRを活用した安全体感教育
- 18 近代住友の歩み
- ニュース & トピックス
- 23 私のオベントウ 住友理工 栗山 正揮さん

Aspirations スミセイアフタースクールプロジェクト 叶えたい未来がある Enriching after-school activities for fun and education After-school facilities are widely available in Japan for children of elementary school age whose parents are both working. They provide a convenient haven for children both after school and during the school holidays. But wide variation in the quality of these facilities is a much-discussed social issue in Japan. Sumitomo Life Insurance's Brand Communications Division is addressing this issue through the Sumisei After School Project, an initiative to enrich afterschool activities in ways that emphasize both fun and education. Project leader Ms. Takami Sunouchi says: "Sumisei After School, launched in 2013, is the brainchild of Mr. Yoshio Sato, then president of Sumitomo Life Insurance. The idea of adding value to after-school activities for children struck a powerful chord with me, perhaps because I myself am a mother. Indeed, this initiative is eminently suited to Sumitomo Life Insurance whose sales force includes some 30,000 women, many of whom are pursuing careers while bringing up children. For them, it is especially important that the afterschool facilities where children spend so much time provide a fun-filled, educationally valuable environment conducive to the youngsters' sound development. Mr. Sato's focus on after-school activities was something that we could all heartily endorse. The project team soon tied up with NPO After School and began offering free-of-charge programs that give youngsters opportunities to have fun while learning through experience. Any after-school facility in Japan interested in participating can submit an application. The project also helps raise overall quality by, for example, holding workshops for instructors and civil servants involved in after-school facilities and disseminating information on best practice. The first programs were rolled out in 2014. The Sumisei After School Project provides programs for about 50 organizations each year. Already more than 4,000 children have participated in these programs. The project has received the Kids Design Award and the Minister of Health, Labour and Welfare Excellent Prize of the Healthy Life Expectancy Award (Maternal and Child Health Category). Ms. Sunouchi says with evident delight, "I am delighted when the children tell us what a wonderful time they had." There are high expectations of this unique Sumitomo Life Insurance initiative. The project is an excellent fit for a company with a nationwide branch network and many thousands of

female personnel who are pursuing careers while raising children.



実をめざし

く学べる学童保 育の 月月

表|1

apan has had to learn to live with natural disasters. Besides earthquakes and tsunami, Japan is prone to volcanic eruptions, typhoons, torrential rain and heavy snowfalls. These calamities not only take a human toll, but also cause damage to houses and other buildings, and infrastructure such as rail and road networks, and moreover can disrupt agriculture, manufacturing, and other sectors of the economy.

The Japanese have been learning to cope with natural disasters for millennia. But as descriptions of disaster prevention in ancient literature attest, they were not simply passive victims of the forces of nature. They implemented disaster countermeasures making the most of the technology then available. In contempo-

rary Japan, following the Great Hanshin-Awaji Earthquake of 1995 and the Great East Japan Earthquake of 2011, as well as several typhoons and urban flooding caused by localized torrential rainfall, measures capitalizing on the latest technology are being implemented to prevent disasters and mitigate their effects. In recent years, in addition to efforts to protect lives and prevent damage to buildings and other structures, technologies and services emphasizing business continuity planning (BCP) that would enable companies to cope with possible disasters have come to the fore.

Sumitomo Realty & Development has constructed an office tower in Roppongi, Tokyo, with a seismically isolated and response control structure. Equipped with systems to ensure continuous power supply, this building will additionally serve as a shelter for the public in the event of a disaster. Also contributing to BCP is a secure document storage facility 60 km from central Tokyo operated by Sumitomo Warehouse. Meanwhile, linking a device that measures and records water levels in sewers with rainfall and geographic information available from existing systems, Meidensha has developed a system providing a basis for timely flood countermeasures in urban areas.

Natural disasters are a fact of life but the technology, expertise, and philosophy that disaster-prone Japan has cultivated can mitigate the effects and contribute to peace of mind.

日本は災害と共に生きてきた国だ。巨大地 震とそれに伴う津波だけでなく、台風や集中豪 雨、豪雪、そして火山噴火はこの国に厳しい 災害を引き起こす。それらは人命はもちろん 家屋・建築物や鉄道・道路網などのインフラ に損害をもたらし、農業や工業をはじめとする 様々な産業にも深刻な影響を与える。

日本人と過酷な自然災害との付き合いは連 綿と続いてきたが、防災に関する記述が古代 の文献にも見られるように、自然の猛威をただ 眺めていたわけではない。時代時代の技術を 基に災害対策を施してきた。1995年の阪神・ 淡路大震災、2011年の東日本大震災を経 験し、台風やゲリラ豪雨による都市型水害に 毎年悩まされる現代の日本でも、最新のテクノ ロジーを駆使した多様な防災・減災対策が講 じられている。近年は人命や建築物などへの

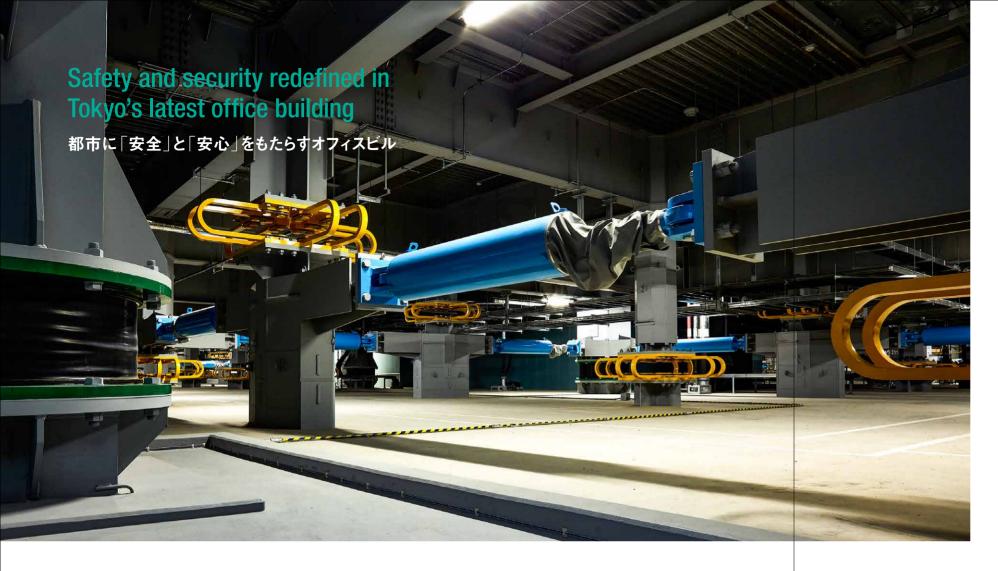
被害を防ぐだけでなく、災害発生時のビジネス 継続を担保するBCP (Business Continuity Planning=事業継続計画) に着目した技術 やサービス提供も始まっている。

住友不動産は、免震・制震構造と電力供 給システムを備え、災害発生時に市民の避難 場所としても機能する施設を東京・六本木に 建設。住友倉庫は都心から60km離れた地 域で文書保管事業を開始し、都心のオフィス が被災してもビジネスを継続できる環境を提供 する。さらに明電舎は、下水道管内の水位情 報を計測・記録する装置と既存の降雨・地 理情報を組み合わせ、都市型水害対策に役 立てられるシステムを構築した。

自然災害自体は避けられないものだが、"災 害大国"として蓄積してきた技術とノウハウそし て哲学が、暮らしに安心をもたらしてくれる。 🛐

Be Prepared In Case Disaster Strikes







(Left) The mid-story seismic isolation layer contains isolators (black, on the left), U-shaped steel dampers (yellow) and oil dampers (blue). In combination, they reduce shaking. (Top) The tower has its own power generator. (Right) The plaza is spacious enough to be converted into a temporary refuge for evacuees during a disaster.

中間免震層の様子。左手の黒く見える部分がアイソレータ、黄色の部分はU字ダンパー、青色はオイルダンパー。これらの組み合わせによるはたらきで揺れが低減される(左)。タワー内部に自家発電設備を備えている(上)。敷地内の広場は非常時に、一時避難者を受け入れるスペースとして活用される(右)。





okyo's Roppongi district is designated a Comprehensive Special Zone for International Competitiveness by the Japanese government with a view to attracting regional headquarters and R&D centers serving Asia. Opened in October, the Sumitomo Fudosan Roppongi Grand Tower is the latest commercial skyscraper in the area. Soaring to a height of 231 m and equipped with the latest disaster prevention systems, the 43-story building will serve the needs of an estimated 10,000 office workers.

The most notable safety feature is a seismically isolated, response controlled hybrid structure, a rarity for high-rise buildings. The damping walls applied up to the 28th floor reduce shaking in the lower floors. A mid-story seismic isolation layer beneath the 29th floor Sky Lobby helps insulate the upper floors of the building from the vibration of the lower floors. The hybrid structure provides a high degree of safety and peace of mind for people on the upper floors in

the event of an earthquake.

As those who experienced the Great East Japan Earthquake in 2011 know, ensuring a supply of power is critical during a disaster. The tower features a triple back-up system. For the normal power source, a loop power receiving system with two power lines is used so that the building can receive power even if the power supply from the main line is cut. In addition, the building has its own emergency generators using mediumpressure gas capable of providing electricity for more than ten days if all external power is cut. These emergency generators can also be fueled with heavy oil stored in on-site tanks to generate power for up to 72 hours if the gas supply fails. Storage spaces for food supplies and other emergency items are provided on each floor. In these ways, the building provides various types of support for tenants' business continuity planning (BCP), which has become a corporate priority in recent While the Roppongi 1-chome station West Exit of the Namboku Subway Line, directly connected to the building, is newly constructed for development of the project, the station square and the pedestrian walkways were also developed for creating a thriving commercial precinct for the area.

Covering some 1,400 m², the plaza of the building provides space for people to relax. It can also be used as a temporary refuge for evacuees in the event of a disaster, with space for portable toilets, emergency wells and cooking facilities. Some of the large-scale buildings in Tokyo developed by Sumitomo Realty & Development were made available for evacuees following the 2011 disaster. The experience gained then is reflected in the Sumitomo Fudosan Roppongi Grand Tower.

Disaster-related infrastructure will remain a focus for Sumitomo Realty & Development in its office building projects, providing further reassurance for those who live and work in the city.

東京・六本木は、アジア地域の業務統括拠点・研究開発拠点が集まるビジネスの中心地。この街の一角に10月、大規模施設「住友不動産六本木グランドタワー」が完成した。43階建て高さ約231mのオフィス棟では約1万人の人々が働くと想定され、防災機能も最新鋭のものが備えられている。

中でも特長的なのが、超高層としては珍しい免震と制振を融合したハイブリッド構造だ。 28階までは制振構造により揺れが低減される 仕組み。29階スカイロビーの下部に中間免 震層が設けられ、上層階は免震装置のはたら きで建物下部の揺れと絶縁に近い状態が生 み出される。安全性の高さはもちろん、揺れた ときに上層階で働く人たちに安心感を与えら れる。

災害時の電力供給が重要であることは、

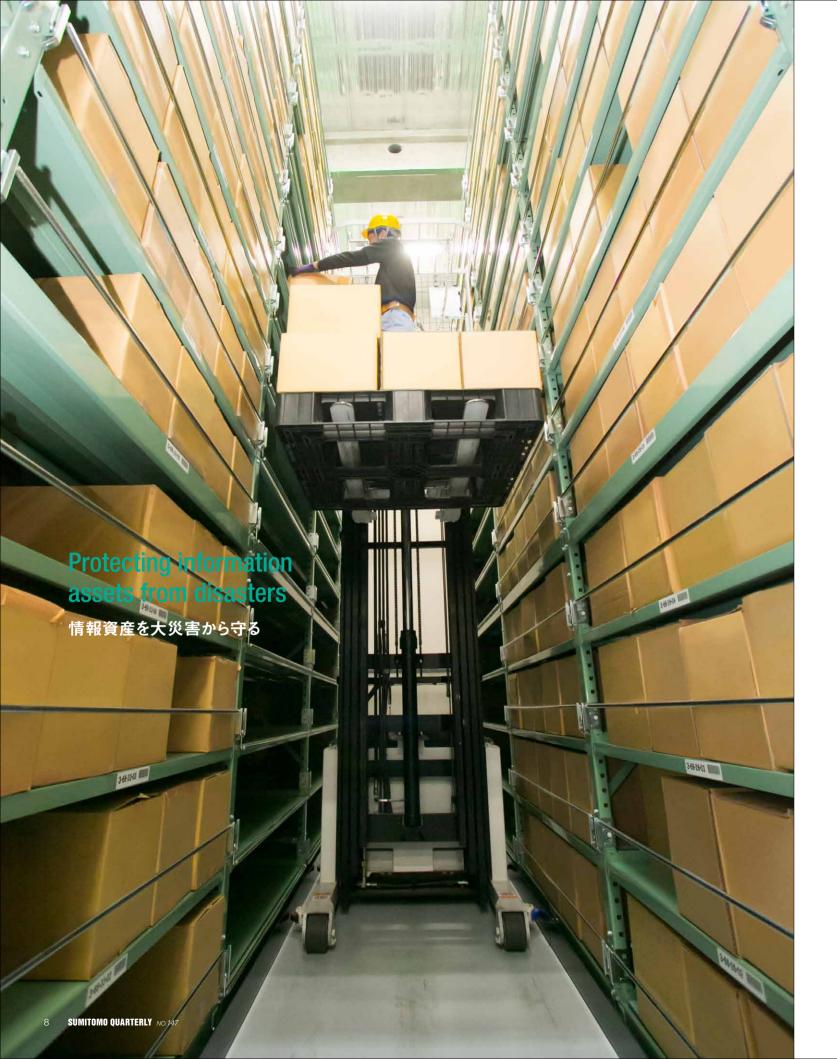
人々が東日本大震災で身をもって体験した通りだが、同タワーは三重の電力バックアップ体制を備えている。外部からの送電は本線が途絶えても予備線から供給できるよう2ルートを確保したループ受電方式で、両方からの送電がストップした際には中圧ガスにより、最低でも10日以上は自家発電を行える。万が一、ガスの供給も途絶えたときは、敷地内のオイルタンクに貯蓄された重油を使って72時間の発電が可能だ。このほか、各フロアにはテナントごとの防災倉庫が設けられ、非常時の食料などを備蓄できる。東日本大震災以降、企業間で高まりつつあるBCP (Business Continuity Planning=事業継続計画)を、多様な対策によってサポートしている。

同タワーの建設に際し、直下の東京メトロ 南北線「六本木一丁目」駅に西口改札を新 設するほか、駅西側の駅前広場や地下鉄連 絡通路などが整備された。これにより地域に 新たな人の流れが生まれ、商業エリアとしての にぎわいも創出される。

地上にある約1,400㎡の広場は、平時は 人々の憩いの場となるが、非常時は仮設トイレ や防災用井戸、調理スペースなどを設置し、帰 宅困難者の一時避難を受け入れるスペースと して活用される。同社が展開する大規模ビル は東日本大震災の際、一部が一時避難者に 開放された。その実績がこのタワーにも生かさ れている。

住友不動産は今後も防災機能を主眼の一つに置きながらオフィスビル開発を進めていく構えだ。それらは都市部で暮らす人たちに、さらなる安全と安心をもたらすことだろう。 🖫

6 SUMITOMO QUARTERLY NO.147



alls for a paperless society have been around a long time, but the cost of digitizing paperbased documents is high and businesses continue to use plenty of paper. Storage of documents has gained in importance due to changing business conditions, including new laws on ISO authentication and privacy protection. Sumitomo Warehouse has traditionally offered "trunk room" services for the storage of personal property. In 1996, the company led the industry in opening the Heiwajima Archives in Ota Ward, Tokyo, the first warehouse protected with a seismic isolation device. Rising demand has supported the growth of the document storage business. Sumitomo Warehouse has since opened two further secure information storage facilities in Hanyu, Saitama Prefecture (Hanyu Archives Warehouse No. 1 and No. 2), in 1998 and 2012.

The March 2011 Great East Japan Earthquake prompted interest in secure document storage among many compa-

ペーパーレス時代が叫ばれて久しいが、紙 の文書をデジタル化するコストは意外に高く、 ビジネスで紙に頼る部分はまだまだ大きい。 一方でISO認証や個人情報保護法などの法 整備によってビジネス環境が変化し、文書保 管の重要性は増している。住友倉庫は従来、 トランクルーム事業のうち、家財などの保管に 注力していたが、1996年に業界初の免震構 造を採用した「平和島アーカイブズ」(東京都 大田区)での文書保管を開始して以来、社会 的な需要の高まりに応じて文書保管サービス に注力している。1998年には埼玉県羽生 市に「羽生アーカイブズ第1センター」を開設 し、2012年には文書保管の安全・安心を 担保する高度な機能を備えた「羽生アーカイ ブズ第2センター」をオープンした。

折も折、東日本大震災が起きた後で、都心 にオフィスを構える企業の多くが、安全な文書 nies with offices in Tokyo. However, storing documents in Tokyo is costly due to high rents along with related labor costs. Outsourcing physical storage of documents to Sumitomo Warehouse is one way of solving this problem.

Situated about 60 km from central Tokyo, Hanyu Archives Warehouse No. 2 offers a secure location unaffected by any major disaster striking the capital. This makes it good for business continuity planning (BCP) purposes. Equipped with seismic protection, the facility could withstand a major earthquake such as that of March 2011. Document storage racks are fitted with bars to prevent the contents from falling, even amid shaking. The facility has an emergency back-up generator for service continuity in the event of a power cut, and a nitrogen gas fire-fighting system. It also has storerooms in which constant temperature and humidity are maintained to prevent degradation of paper or magnetic tape. A range of services is provided. For

保管方法に関心を示していた。しかし都心では文書保管に高い賃料を払って専用スペースを確保しなければならず、相当の設備や人員コストが必要となる。同社の文書保管サービスを活用すれば、そうした課題を一気に解決できるというわけだ。

羽生アーカイブズ第2センターは都心から約60kmの距離にあり、都心で大災害が起きた場合でも同時被災が避けられる。BCP(事業継続計画)には非常に有効といえる。免震設備を備えた建物は、東日本大震災級の巨大地震でも揺れを効果的に低減。文書保管箱を格納する棚には落下防止バーが設置され、揺れても箱が落下することはない。また、電力供給が途絶えた場合は、非常用自家発電設備に切り替わるためサービスを継続することが可能。万が一、施設内で火災が発生しても、窒素ガス消火システムにより迅速に消

example, customers requiring documents can have them delivered to an office in Tokyo the next day provided a request is made by 4 pm. An online system allows customers to issue storage and retrieval instructions and centrally manage information assets stored in the warehouse. A disposal service is also provided. These services offer customers reassurance that their information assets are stored securely. Digitization is another optional service on offer.

The high-value combination of safety, security and service features has resulted in steady growth in the volume of documents in storage at the facility, including a lot of confidential information in the form of financial contracts, personal information and technical materials for manufacturing. Such is the demand that Sumitomo Warehouse is considering building new facilities. Extending document storage services to clients overseas is also a future possibility.

火できるほか、紙文書だけでなく磁気テープなども劣化を抑えて保管できるよう、一定の温度と湿度が保たれる保管庫も備えている。 閲覧の必要が生じたときは、前日16時までに連絡すれば翌日には都心のオフィスにお届けするなどサービスも充実。 倉庫への入出庫指図や在庫情報の一元管理が可能なWebシステムや廃棄サービスも提供しており、顧客は安心して重要文書などの情報資産を預けることができる。また要望があれば、紙の文書のデジタル化にも対応している。

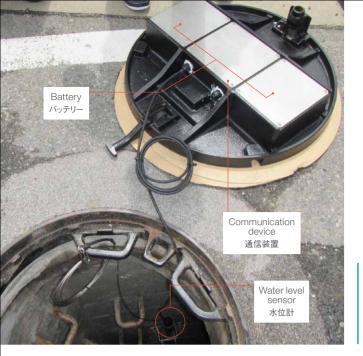
このような安全性と様々な機能が高く評価され、金融機関などの契約書や個人データ、メーカーの技術資料など機密性の高い文書を含め、同センターでの保管量は着実に増加しており、住友倉庫では倉庫の増設も検討しているという。今後は海外での文書保管サービスの展開も視野に入れていく考えだ。

Hanyu Archives Warehouse No. 2 has advanced security features such as seismic isolation and a nitrogen gas fire-fighting system. It supports BCP by protecting valuable documents from disasters.

羽生アーカイブズ第2センターは免農 構造や窒素ガス消火システムなど、高 い防災機能を備えている。 重要文書 を大災害から守ることで、企業のBCP (事業継続計画)をサポートしている。

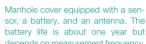






Manhole covers monitoring water levels in sewers support flood countermeasures

下水管の水位を監視するマンホール



センサーやバッテリー、アンテナを装備したマンホール。 バッテリーは、計測頻度などにもよるが、1年程度持つ。



uerilla downpours, sudden bursts of torrential rain, have caused havoc in Japan in recent years and consequently attracted plenty of attention. These cloudbursts have frequently overwhelmed sewerage systems in urban areas, flooding roads and underground shopping arcades. As a countermeasure, Meidensha, in collaboration with Nihon Suido Consultants, has launched a cloud-based real-time sewer monitoring service. Sensors mounted on manhole covers collect data on water levels in sewers. The service uses a geographic information system (GIS) and rainfall data. This service is in line with recent legislation on flood countermeasures in Japan, including the revised Flood Control Act, which came

Meidensha has long been a provider of electrical facilities of wastewater treatment plants and other plants but had no experience in sewer pipes. So teaming up with Tokyo Metropolitan Sewerage Service Corporation and cast iron manhole cover manufacturer Hinode, Ltd. to develop a manhole cover equipped with a water level gauge and a communication device, Meidensha created a real-time water level monitoring system for sewers.

into force in July 2015.

Linking this system with XRAIN (eXtended RAdar Information Network) of the Ministry of Land, Infrastructure, Transport and Tourism and the GIS, rainfall and water levels in particular districts are visualized on a map. Meidensha

has high expectations that the system will prove useful, enabling local governments to predict flooding and issue flood warnings.

A manhole cover is equipped with a water level sensor, a communication device, and an antenna. The communication device uses the mobile phone network. It is also equipped with a battery, thus dispensing with the need for an external power supply.

Local governments in the Tokyo Metropolitan area as well as elsewhere in Japan have started introducing the manhole covers. They are establishing a system, which will be added to an existing cloud service that already offers rainfall and geographic information. There is no need to replace all conventional manhole covers since one per zone suffices for an adequate monitoring system. Although it depends on the size of a municipality, four or five manholes are usually enough for monitoring water levels. A full-scale service is not yet up and running, but water level data measured by these manholes have already been used for flood countermeasures.

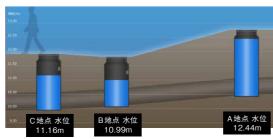
Since this is a new initiative in a new field, Meidensha was at first unfamiliar with the procedures for gaining permission for system installation, for example, which organization should be contacted to secure permission. For the hardware, ensuring waterproofing and airtightness of communication devices and other electronic equipment was challenging because of water and corrosive gas in sewers.

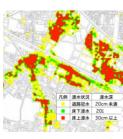
For software, existing systems for rainfall and geographic information are utilized. Nihon Suido Consultants had been offering a service for uploading measured data to the cloud. The partners elaborated how to visualize water-level data by combining those systems and services.

Going forward, Meidensha aims to evolve the system into a disaster prevention system supporting countermeasures for urban flooding in larger areas by obtaining data on water levels in sewers in many cities and superimposing the data on a map.

Water levels are indicated on a crosssectional diagram that also shows the altitude of manholes and depths of sewers (left) and a real-time hazard map (right) is displayed so that the situation can be grasped at a glance.

マンホールの標高や管きょ(地下水路)の深さを考慮した断面図に水位を表示したり(左)、リアルタイムでハザードマップ(右)を表示するなど、一目で状況が把握できる。







近年、いわゆるゲリラ豪雨が注目されている。特に都市部で、短時間に多量の雨が降り、処理能力を超えた雨水が道路や地下街にあふれて被害を及ぼす例が全国各地で起きている。この都市型水害への対策として、明電舎はマンホールの蓋(以下、マンホール)にセンサーを取り付け、降雨情報やGIS(地理情報システム)と連携させ、下水道管内の水位情報をクラウドで提供するサービスを、日水コンと共同でスタートした。2015年7月に施行された改正水防法など水害対策に関する法整備に対応する形で着手した取り組みだ。

明電舎では以前から下水処理場などの電気設備やプラント監視サービスを提供していたが、下水管は未知の分野だった。そこで、東京都下水道サービス、日之出水道機器と共同で計測・通信装置を装着したマンホールを開発。これをキーデバイスとすることで、下水管内の水位をリアルタイムにチェックできるシステムを作り上げた。

このシステムと、国土交通省が提供する降 雨情報「XRAIN (XバンドMPレーダーネット ワーク)」および GIS を連携させることで、特定 地域の雨と水位を地図上に "見える化"し、自 治体が発する水害や避難情報などに役立た せたいというのが同社の考えだ。

水位の計測・記録と携帯電話回線利用の 通信装置、アンテナなどを取り付けたマンホー ルは、バッテリーを搭載しているため外部から の電力供給は不要で、既存のマンホールと交 換するだけで運用できる。

この製品自体はすでに首都圏をはじめとする全国の自治体で導入が広がっており、現在は降雨・地理情報と連携したクラウドサービスの開始に向け各自治体でシステムを構築しているところだ。都市のすべてのマンホールを同製品に交換する必要はなく、排水区域ごとに1カ所設置していれば十分に機能するので、都市の規模にもよるが1自治体当たり4~5カ所程度設置すればいいという。本格的なサービス開始はこれからだが、すでに同製品で計測した水位情報を実際の水害対策に活用した例は出ている。

初めての分野での取り組みだったため、当

Development team members Ms. Chiho Saito and Mr. Mitsuhiro Nakajima with one of their allipone high-tech manhole covers

1台で完結するハイテクマンホール。開発チームの齋藤千穂さん(左)、中島満浩さん(右)。

初は敷設に際してどの組織に許可を取ればいいのかなど戸惑うことも多かったという。またハードウエアの部分では、下水管内は水が流れ腐食性ガスも発生するため、通信装置など電子機器の防水性・気密性をいかに確保するかで苦労があったという。

ソフトウエアの部分では、降雨・地理情報は既存のものを活用。計測データをクラウドにアップするサービス自体は日水コンが以前から提供していたが、それらを組み合わせて水位情報をいかに見える化するかについて工夫を重ねたという。

今後はより多くの都市で下水管内の水位を 面的に捉え、地図上にマッピングすることで、 広域的に都市型水害対策に活用できる防災 システムとして成長させていくことが目標だ。 🗊

10 SUMITOMO QUARTERLY NO.147



Destination [今回の訪問先]

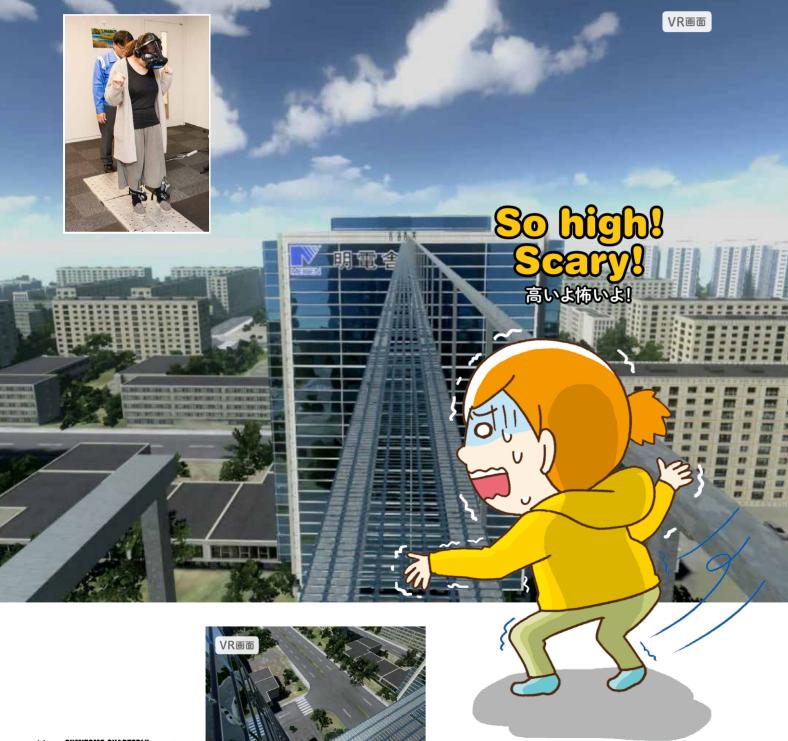
Meidensha

Experience-based Safety Training Using Virtual Reality

明電舎「VRを活用した安全体感教育」

Meidensha conjures up ultra-realistic experiences with virtual reality to enrich safety training for engineers and workers at construction sites.

工事現場で働く人たちに向けた安全教育の一環として、 他に例を見ないVRを取り入れた研修を実施している。



Falling from scaffolding 墜落災害

Realistic 360° cityscape!

360度、リアルな風景が広がる!







Amid a 360° cityscape viewed from 63 m up!

ぐるっと見回すと、 360度、どこを見て も、リアルな景色が 続く。高さは63m!

idely trumpeted as the next big thing and already part of the gaming experience, virtual reality (VR) is a hot topic. Attracted by this powerful new tool, Meidensha is using ultra-realistic VR to enrich experience-based safety training. I had a go and it was an unforgettable experience. Stepping into the training room, I find a monitor, a pair of goggles, a fan, and some scaffolding planks. It's not much but, as you will see, it's enough to transform a nondescript meeting room into an entirely different world. Once kitted out with sensors on my legs, and with my head encased with goggles, and headphones, I am transported to the first of those other worlds as I teeter on scaffolding attached to a high-rise building! Looking around, I see what I would see if I were really way up above street level. The trainer says: "You are about to step onto a scaffolding plank leading to the roof of an adjacent building."

A moment later, I step onto the plank, 63 m above ground level, which is roughly the height of a 20-story building. Apparently it's neither too high nor too low, but just the right height to grab your attention and make you fearful. True, I know in my mind this is only virtual reality and I am not really perched on scaffolding with a hideous fate awaiting me if I step off into space. But it definitely has the look and feel of reality. I start to tremble. The trainer gives the order: "OK. Now, please jump off." No...it's impossible. I can't do it. I hesitate for what seems like several minutes. Trembling with fear, I lean out from the plank and suddenly I am hurtling toward the street. The cityscape revolves around me. I hit the ground. I realize you can fall just by sticking your head out at the wrong moment. What if it was really real! What a scary thought!

最近、ゲームなどでの普及で一段と注目度がアップしているVR(仮想現実)。そのVRを使った安全体感教育を明電舎さんが実施しているというので、体験してきました。室内にあるのはモニターとゴーグル、扇風機に足場板のみ。いたって普通の会議室。それが足にセンサー、目にゴーグル、耳にヘッドホンを装着した途端、景色は一転ビルの外! 360度見回すと景色が現実と同じように広がります。「ビルの上に渡してある足場板に今から上ります」と声がかかる。

次の瞬間はもう足場板の上。地上63m! ビルの20階に相当するらしい。なんでも高すぎず、低すぎず、程よく恐怖を感じられる高さだそう。「ここ、本当にビルの上なんじゃないの?」。頭では仮想だって分かっていても体が震える。「ハイ、じゃあそこから飛び降りてください」。え、飛び降りるなんてムリ! ためらうこと数分……。震えながら足場板の外に顔を出すと、景色が円を描くように流れ地面の上へ!「顔を出すだけでも落ちる」。現実だったら……ぞっとした!





Mobile training service available for added convenience. About 1,000 people have experienced the VR training since the launch in 2016. And so far none of them have had accidents since the training.

"出張研修"も実施。2016年に開始してから、約1,000人が研修を受けており、これまで受護者の事故はゼロ。

Wearing these goggles plunges me into an utterly different world.

ゴーグルをつけると世界が一変!









n the next virtual experience, I find out what it is like to be scorched by sparks produced by a grinding tool. This sounds easier to handle than leaping from a 20-story building. I am handed an electric grinding tool of a type widely used in workplaces. It weighs about 3 kg but my aching arms tell me it is heavier. The blade is covered for safety but the brrrrrrrrrrr of the motor and the vibration stir up my emotions. I want to put it down. When I put on the goggles, I see a worker who is about to grind a pipe.

Then I am told, "Now you'll synchronize with the worker". The next moment, I see what the worker sees. The grinder and a pipe are right in front of me. Brrrrrrrrrrrrrr... The blade touches the pipe. Instantly a flurry of sparks blazes up into my

次に体験したのは「火の粉飛散やけど体験」。さっきの20階からの墜落に比べたら怖くない……と内心思って挑む。手元に用意されていたのは実際現場で使用するグラインダー。3kgほどありずっしり重い! 刃先には安全のためカバーがつけられているけれど、ギュイーンという回転音と振動が恐怖心をかきたてる。手、離しちゃいたい。ゴーグルをつけると視線の先では作業員が配管を切ろうとしている。

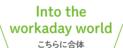
「今から作業員と同化します」。次の瞬間、視界が作業員の視界になっていて、手元にはグラインダーと配管。ギュイーン!!激しい音をたてて配管に刃先が触れた瞬間目に飛び込む火花!思わず「熱い!」と声が出ます。小さな火花がギュインギュインという音とともに四方八方にはじけて、クライマックスは手元が見えないくらいの光の塊になって飛び込んでくる。もう嫌だ!なんで保護メガネつけないのこの人!私だったら絶対つける!そう誓わずにはいられない体験でした。

eyes. "Ouch! That's hot!" Sparks fly in every direction. Finally, a mass of sparks flies towards me, obscuring my hands and getting into my eyes. I can't stand it! It's an unforgettable experience teaching you why you should always wear protective gear. I definitely would!

Getting scorched やけど災害

Sparks! Hazardous grinding work

火花がスパーク! 切断作業の危険





Working in the VR world この映像の人に一体化し VRの世界で作業を開始。





Cutting the metal pipe using a grinding tool. Sparks fly into my face!

グラインダーで金属パイプを切断する。火花が飛んで、顔にかかる!

nd finally, I take a tumble from a work platform. That sounds like a piece of cake. compared to leaping from the 20th floor and there are no sparks. I'm not scared at the thought of a fall that is roughly equal to my own height. I put on the goggles and synchronize with the worker on the platform. Surprisingly, it's quite scary. It's quite high. "Now you'll fall." As the floor rushes up to meet me, I almost cry out "Arghhhh!" I feel as if my nose hits the deck. I feel dizzy and would have fallen over if the staff had not supported me.

All these VR experiences make you feel scard. That is what they are supposed to do. Feeling fearful heightens your awareness. Although you won't actually hurtle to the ground or get scorched in the VR simulations, VR certainly stimulates fearfulness with a realism that grabs at your heart and your mind. It encourages you to implement all the safety measures to minimize risks once you are out working in the real world with all its real dangers.

Meidensha offers experience-based training using VR throughout Japan upon request. I hope that the safety awareness of people will be raised through VR-based experiences at workplaces all over the country.

最後は「作業台転落体験」。20階建てからの墜落でもないし、火花も散らないし、人の背丈ほどの高さからの転落なんて余裕でしょ。そんなふうにまたしても軽い気持ちで体験。ゴーグルをつけると台の上の作業員に同化。……怖い! けっこう高い。「ハイ、転落します」。ぐわっと床が近づき、思わず「痛い!」と叫びそうになる。地面に鼻がぶつかるような感覚。体がぐらつき、スタッフに支えられなきゃ転んでた。

怖い! どの体験も心底怖い。VR体験の目的は「怖い」ということを感じることだそう。「怖い」と思うことが「気をつけよう」という意識につながる。墜落体験もやけど体験も、実際にやるわけにはいかない。けど、VR体験でリアルに恐怖を感じることで「実際に危ないことをしないために」身を引き締めて安全対策に取り組むことができるのです。

各地の現場にこのVRでの体感教育を"出張"もしているとのこと。 幅広い現場でVR体験を通して安全への意識が高まるといいですね!

Falling from a work platform 墜落災害

Experience of falling off from a work platform





VR画面

高所の作業台からの転落体験 も。リアルな転落の様子に、ふ らつく人が多い。

_

……ような気がする!

SUMITOMO'S MODERN DEVELOPMENT

近代住友の歩み Part 10

People Make the Enterprise — The Creators of Sumitomo 事業は人なり — 住友を築いた人々



Third Director General Masaya Suzuki (at center in the front row wearing a hat) in 1919 with employees at the Neisei Dormitory.

1919年、寧静寮の寮員たちと鈴木馬左也(前列

Recruitment and Development of Human Resources at Sumitomo 住友の人材登用・育成のあり方

For Sumitomo and for the benefit of society

The aphorism "People make the enterprise" and the philosophy it pithily expresses, together with the Sumitomo Business Spirit, have been handed down from one generation to the next, embodying the time-tested wisdom of Sumitomo. People are the building blocks of organizations and they lead the development of the enterprise. The recruitment, fostering and retention of excellent people have long been our foremost priority.

It was in this spirit that Saihei Hirose, the first Director General of Sumitomo, addressed the workforce of the Besshi Copper Mines in 1887, observing, "This is the greatest copper mine in Japan but without you it would yield no copper." He continued, "Our mission here is to contribute to the prosperity of Japan and the people of this country." Hirose focused on the prime importance of the human dimension in any business enterprise and stressed the centrality of Sumitomo's policy of contributing to society by working in unison. In his speech, Hirose articulated Sumitomo's principles and orientation.

Amid Japan's transformation into a modern state, Hirose put Sumitomo's

working practices and remuneration system on a new footing aligned with the needs of the new era. Furthermore, he oversaw a thorough reformation of the personnel system to encourage excellent personnel to bring their capabilities into full play. In 1877, in a significant divergence from previous practice, he began hiring executives from outside Sumitomo. He explained, "With the passage of time and the change of circumstances, it is important not to slavishly adhere to outworn customs and the traditional hierarchy." Hirose subsequently recruited bureaucrats from Japanese government service who could contribute to Sumitomo from day one. Teigo Iba was among this distinguished intake of talented individuals who not only led development of the business but also formulated the Rules Governing the House of Sumitomo, which serve as the guiding principles of Sumitomo to this day.

Teigo Iba, the second Director General, further widened the scope of recruitment. As well as securing the services of Bank of Japan Director Kinichi Kawakami and other highly capable managers, Iba, who always had an eye to the future, emphasized the recruitment of talented young people. They included Masaya Suzuki (35 years old), Kinkichi Nakata (36), and Masatsune Ogura (24). They resigned from government service to join Sumitomo, bringing with them their high aspirations. All were exceptionally gifted and each later served as Director General. In those days, most university graduates entered the Government bureaucracy. Iba was the first Director General to recruit a newly minted university graduate, Shinichi Yoshida, who later served as the chairman of the Sumitomo Trust. Iba dispatched newly recruited young employees on missions overseas.

As he explained, "I want them to apply what they learn not only for Sumitomo but also for the benefit of society." He encouraged them to cultivate a broad perspective, not limited to Sumitomo's business, and to foster people capable of contributing to society.

Neisei Dormitory for new employees

Masaya Suzuki, the third Director General, was at one with Iba in his enthusiasm for recruiting and fostering excellent people. Suzuki himself always participated in the interviews of candidates for executive positions. Sumitomo head office handled all the recruitment. Rather than each group company doing its own recruitment, which is the current practice, Sumitomo head office recruited people based on a uniform system of remuneration and terms and conditions of employment. Then, reflecting their preferences, they were assigned to enterprises directly managed by Sumitomo, including the Besshi Mine, the copper plant, and the fertilizer plant, or to affiliated companies such as the Sumitomo

Bank and the Sumitomo Electric Wire & Cable Works. Suzuki established a system emphasizing selection of the right person for the right job.

In 1918, Suzuki built the Neisei Dormitory, a company dormitory for unmarried new employees. To cultivate the Sumitomo ethos, new employees lived in the same dormitory regardless of age, educational background, and the group company for which they worked. Integrity was emphasized and relationships among employees were deepened. Suzuki himself often stayed at the dormitory and had freewheeling discussions with employees about the nation and business. In this way, Suzuki gained the enthusiastic allegiance of the young men, encouraging them to make the fullest possible use of their energy and ability in collaborative endeavors for the benefit of Sumitomo and society.

Thus, Sumitomo acquired a cadre of excellent, richly talented people eager to give of their best. They developed the business while always remaining faithful to the Sumitomo Business Spirit. All of us at Sumitomo continue to draw inspiration from their shining example.

住友のみならず社会のために

「事業は人なり」。その言葉と理念は、住友 の事業精神とともに、住友の伝統として長く受 け継がれている。組織を支え、事業の発展を 導くのは人であり、優秀な人材の登用と育成 は最重要視されてきた。

初代総理事・広瀬宰平は、1887年、別子銅山で人々に向かって思いを告げた。「別子が日本有数の銅山といえども、ここに集まった一人ひとりがいなければ銅を採ることすらできない」「我々がここで働くのには大きな意味がある。それは事業を通じて国を栄えさせ、社会を豊かにしていくことだ」。事業において何より人が重要であり、事業を通じ、協力して社会に貢献していこうという姿勢を説いた広瀬。住友が立脚すべき点と目指す方向が語られている。

前時代からの変革期にあった広瀬は、住友の勤務体制や給与体系を刷新し、優秀な人材が活躍できるようにと人事制度を整えた。そして、1877年には「時代が進歩するにしたがい、いたずらに旧慣習にこだわり、旧来の序列を守ることは適切でない」と、新たに外部からの人材登用に踏み切った。これにより、伊庭

貞剛をはじめ政府で活躍していた即戦力の人 材を住友に招き入れた。彼らの参画を得て、 事業の発展のみならず、後に住友の礎となる 住友家法もまとめられていく。

二代目総理事となった伊庭貞剛は、さらに広 く人材登用を行った。日本銀行で理事を務め た河上謹一など実力者を迎え入れる一方で、 将来を見据えて若い人材の確保に力を入れ た。その中には鈴木馬左也(35歳)、中田錦 吉 (36歳)、小倉正恆 (24歳)がいる。いず れも官職を辞して、志を持って住友に入社し、 後に総理事を務めたほど才能にあふれた人 物たちだ。また当時、大学卒業生のほとんど が官僚になる中、住友初となる新規学卒者を 採用。後に住友信託会長を務める吉田真一 だ。伊庭は登用した若い社員たちを入社と同 時に海外視察に派遣した。その理由を「単に 住友のためではなく、広く世の中のためになる ことを希望しているから」と語り、住友の事業に とどまらない広い視野を持たせ、社会に役立つ 人材の育成を目指した。

新入社員たちが語り合った寧静寮

三代目総理事・鈴木馬左也も伊庭と同じく、

優秀な人材の登用と育成に情熱を傾けた。 鈴木は幹部候補の新入社員面接試験に必ず出席し、受験者に口頭試問するのが常だった。そして、採用は住友本店で一括して行った。今でいうグループ会社での個別採用ではなく、給料や待遇を全員同じにして、その後、本人の希望などを考慮し、別子鉱業所、伸銅所、肥料製造所などの直営店部や、住友銀行、住友電線製造所などの連系会社に配属。適材適所で活躍できる仕組みをつくった。

1918年には、新入社員用の独身寮「寧静寮(ねいせいりょう)」を建設。年齢や学歴、所属を問わず、新入社員たちを同じ寮に集め、生活させることで、人としての教育、そして社員同士のつながりを深めた。鈴木もたびたび寮に泊まり、自由な雰囲気の中で、国家や事業について社員たちと語り合った。そうすることで若者の心をつかみながら、彼らの能力を十分に引き出し、育てていった。

こうして優秀で多様な人材が住友に集い、 住友の事業精神という共通の理念の下、能力 を最大限に発揮しながら、事業の発展を支え てきた。時代を超えて、一人ひとりが今に続く 住友を創り上げてきたといえよう。

News & Topics

ニュース&トピックス

Nippon Sheet Glass 日本板硝子

Vietnamese subsidiary commended for high-quality glass for solar cells

Nippon Sheet Glass subsidiary NSG Vietnam Glass Industries (VGI) received the 2016 Outstanding Quality Award from First Solar, a leading global provider of photovoltaic solar sys-



tems. First Solar singles out suppliers for commendation that deliver products of outstanding quality. VGI's enduring commitment to First Solar's Supplier Quality Continuous Improvement (SQCI) process was cited

NSG Group including VGI supplies transparent conductive oxide (TCO) coated glass used in the manufacture of First Solar's sophisticated thin-film solar modules. Most of VGI's production is shipped to First Solar's module manufacturing facility in Malaysia S0

薄膜太陽電池用ガラスの品

改善で表彰

組み続

NEC NEC

The world's first development of a prototype fingerprint-sensing device for newborns and infants

NEC has developed the world's first fingerprint-sensing device capable of capturing fingerprint images of newborns and infants. The prototype combines a high-resolution CMOS image sensor and a special glass plate for image enhancement. Realization of strict personal identification contributes to appropriate vaccination and feeding as well as control of birth certificates to prevent erroneous switching of newborns.

In a field test in India conducted in collaboration with Michigan State University, the prototype device successfully captured the fingerprint images of more than 100 infants younger than 6 months, one of whom was just six hours old. NEC presented the result of the field test at the Sixth Symposium on Biometrics, Recognition and Authentication held in Tokyo in November 2016.

新生児・乳幼児専用の指紋撮像機器の 試作機を世界で初めて開発

NECは、新生児・乳幼児専用の指紋撮像機器 の試作機を世界で初めて開発した。高解像度のC MOSイメージセンサーと指紋画像を強調する特殊ガ ラスの組み合わせにより、従来は困難だった新生児・ 乳幼児の指紋撮像を可能にした。厳格な本人確認 を実現することで、新興国におけるワクチン接種や 食糧供給の適正化、出生証明の適正管理、新生児 の取り違え防止などに貢献する。

また、同機器を用いて米ミシガン 州立大学とインドで行った実証実験 において、生後6時間の新生児をは じめ生後6カ月未満の新生児・乳 児100人以上の指紋撮像に成功し た。NECはこの実証実験の成果を 2016年11月に開催された「第6回 バイオメトリクスと認識・認証シンポ ジウム」で発表した。

News & Topics

Sumitomo Realty & Development 住友不動産

Refurbishment of traditional wooden house and five other projects win Good Design Awards

In September 2016, six Sumitomo Realty & Development projects received Good Design Awards 2016 in the Housing and Living Space Category from the Japan Institute of Design Promotion. This is the 14th consecutive year that Sumitomo Realty & Development has won Good Design Awards.

Among the award-winning projects is the refurbishment of a traditional wooden house in Izumozaki, Niigata Prefecture. Many owners of houses that are fine examples of vernacular architecture wish to hand on the family home inherited from their forebears to succeeding generations. Sumitomo Realty & Development has devised a new housing maintenance cycle in order to maintain comfort and convenience for many years following refurbishment. Emphasizing adaptation to contemporary lifestyles, the refurbishment makes it possible to bequeath traditional wooden houses in excellent condition, both structurally and aesthetically, far into the future.

・ナンスサイクル・も歴史を重ねつつ・・へ向けて住友不見

の 賞ど



Sumitomo Mitsui Card 三#住友カード

Launch of JOURNEY of JAPAN online media platform for foreign tourists visiting Japan

On October 1, 2016, Sumitomo Mitsui Card launched JOURNEY of JAPAN, a web media content service that recommends credit card affiliated merchants to foreign visitors to Japan and provides them with tourist and travel information. Through a combination of the website with a smartphone app for distributing coupons and offline map display and route guide functions, JOURNEY of JAPAN aims to offers comprehensive support to foreign travelers in Japan and also to people planning trips to Japan. At present, JOURNEY of JAPAN lists about 500 merchants, including hotels and consumer electronics retailers. Sumitomo Mitsui Card Company plans to expand the list of merchants with a focus on business categories and regions that dovetail with foreign tourists' needs and interests.

JOURNEY of JAPAN also serves as a platform contributing to regional revitalization because it attracts foreign tourists to affiliated merchants all over Japan.





JOURNEY of JAPAN smartphone app (top)

上:スマートフォンアプリ。

訪日外国旅行者をサポートする ウェブメディアを開設

三井住友カードは2016年10月1日、 訪日外国人向けにクレジットカード加盟 店情報や観光情報などを発信するウェ ブメディア「JOURNEY of JAPAN」を 開設した。ウェブサイトに加え、クーポン やオフラインマップ、ルート案内機能を持 つスマートフォンアプリの組み合わせによ り、訪日外国人旅行者および日本に興 味を持つ外国人の旅行をトータルにサポ ートすることをめざす。現時点でホテル・ 家電量販店を中心とした約500店舗の 掲載が決定しており、今後は訪日外国人 のニーズが高い業種・地域を中心に掲 載店舗の拡大を予定している。

また同ウェブメディアは、日本各地の加 盟店へ訪日外国人を送客することで「地 方創生」に貢献するプラットフォームとし ての側面も有している。

SUMITOMO OUARTERLY NO.147 21

News & Topics

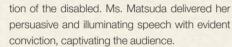
ニュース&トピックス

Sumitomo Group Public Affairs Committee 住友グループ広報委員会

Sponsorship of the 85th National Speech Contest for Students of Schools for the Blind and Visually Impaired

The Sumitomo Group Public Affairs Committee was a special sponsor of the 85th National Speech Contest for Students of Schools for the Blind and Visually Impaired (organized by The Mainichi Newspapers, The Braille Mainichi, etc.) held on October 7, 2016 at Osaka Minami Prefectural Special Needs Education School for the Visually Impaired.

Ms. Erika Matsuda won the first prize in this year's contest with a speech titled "I am a Migratory Fish." She described how she used to suffer debilitating anxiety, oppressed by the feeling that she was a burden on her family because of her disability. But her mother's tender words were a revelation to her, inspiring her to find her place in the world. She resolved to devote herself to educa-



The winner of the first prize was awarded the Sumitomo Group Cup and the top three contestants received educational trips abroad.

月7日(金)、大阪府立大阪南視 覚支援学校で開催された「第85 「私は回遊魚」と題した弁論を 「私は回遊魚」と題した弁論を 「私は回遊魚」と題した弁論を 「私は回遊魚」と題した角論を

第85回全国盲

学校弁論大会



Sumitomo Group Public Affairs Committee 住友グループ広報委員会

15th Intercollegiate Negotiation Competition

On December 3 and 4, 2016, the 15th Intercollegiate Negotiation Competition (INC) sponsored by the Sumitomo Group Public Affairs Committee was held at Sophia University in Tokyo. This competition encourages young people to cultivate arbitration and negotiation skills effective in an international setting. The Sumitomo Group Public Affairs Committee is eager to help foster people with international perspectives by providing opportunities for university students to acquire negotiation skills. The contestants were 235 students from 19 universities, including 15 universities in Japan,

the University of Hong Kong, and the National University of Singapore. etc. The winners of the first prize, Team Australia (representing two Australian universities), were presented with a cup by the Sumitomo Group Public Affairs Committee. All the participants received commemorative goods bearing the INC logo. They will also receive a DVD of the event.

第15回インターカレッジ・ ネゴシエーション・コンペティション開催

12月3日(土)と4日(日)の2日間、住友グループ広報委員会が特別後援する第15回インターカレッジ・ネゴシエーション・コンペティション(INC)が上智大学で開催された。この大会は世界に通用するネゴシエーターを養成することを目的に開催されており、住友グループ広報委員会は大学生の交渉教育を応援し、真の国際的な人材育成に寄与したいと考えている。今回は日本から15大学、海外から香港大学、シンガポール国立大学などが

参加。計19大学、235人の学生が 熱戦を繰り広げた。優勝したのはチーム・オーストラリア(2大学合同)。優 勝チームには住友グループ広報委員 会から優勝カップが、参加者にはINC のロゴが入った記念品が贈られた。ま た当日の模様を収録したDVDが参加 者全員に配布される予定。 boxed lunches of Sumitomo Group staff around Japan

全国各地の住友グループ社員の お弁当を紹介します





Masaki Kuriyama

Global Human Resources Section, Human Resources Department Sumitomo Riko

住友理工 人事部 グローバル人事課 **栗山 正揮**さん



The rice is mixed with sweet potato that the Kuriyama family harvested last weekend on a trip to the countryside. The main dish is stir-fried pork with ginger cooked by Kuriyama at his son's request. Fried carrot and tuna are served with broccoli, as suggested by Mrs. Kuriyama. The colorful bento reflects suggestions from every member of the family.

ご飯は、休日に家族で一緒に掘ったサツマイモ入り。メーンの豚肉の生姜焼き は、息子のリクエストで栗山さんが調理した。ニンジンとツナの炒め物に、妻のア ドバイスでブロッコリーを添えるなど、家族みんなの思いが詰まった彩り弁当。

ちが、仕事の源になっている。 幻家族や周囲の人を大切に思う気持た料理は妻が作ってくれます」。 ドカン! と。彩りや栄養価を考えた力と! と。彩りや栄養価を考え

妻が作ってくれます」。まないます。今朝も家族でっています。今朝も家族の一部を作り、自分のお弁の一部を作り、自分のお弁の一部を作り、自分のお弁の一部を作り、自分のお弁の一部を作り、自分のお弁の一部を作り、

◆□□

Founded in 1929, Sumitomo Riko is a manufacturer of rubber products. It manufactures and sells automotive parts, including anti-vibration rubber products and hoses and parts for IT products. Sumitomo Riko currently has 105 sites in 23 countries worldwide.

1929年創立のゴム製品メーカー。防振ゴム・ホースなどの自動車用部品や、IT関連部品などの製造・販売を行う。現在では世界23カ国に105拠点を設けている。

uriyama works in HR management for Japanese expatriates dispatched elsewhere in Asia and he supports them and their families while they are based over-

seas. He often has meetings in the evening because of the time differences between overseas sites and Nagoya HQ and travels overseas on business every couple of months. Because Kuriyama can only have dinner with his six-year-old son and two-year-old daughter every now and then, he cherishes the time he spends with his family at breakfast and on weekends. He also enjoys cooking for his family, including preparing his bento. "In the mornings and on weekends, I prepare several dishes to keep in the fridge. This morning I prepared a couple of items in readiness for this evening's family dinner as well as a bento for my lunch."

He often cooks lasagna, which is a great favorite of the children. "My specialty is platters for sharing. More elaborate, color-coordinated dishes striking the correct nutritional balance are my wife's department."

Concern for the wellbeing of family and coworkers motivates him in his work.

22 SUMITOMO QUARTERLY NO.147