



Keep going

OUR JOURNEY

TO SUSTAINABILITY

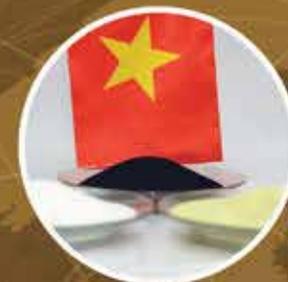


Table of contents

01	02	03	04	05	06	07	08	09
ABOUT US	SUSTAINABILITY AT MASAN RESOURCES	MAKING TRANSPARENCY KEY APPROACH TO OVERSIGHT SUSTAINABILITY	KEEP GOING OUR BUSINESS DEVELOPMENT	INVESTING IN HUMAN CAPITAL FOR SUSTAINABLE ECONOMIC GROWTH	TOWARDS A ZERO HARM WORKING ENVIRONMENT	THE CIRCULAR APPROACH TO SUSTAINABILITY	SUSTAINABLE GROWTH FOR OUR COMMUNITIES	
11	35	59	73	83	101	113	131	



About this Report	5	Business overview	12	Company development objectives	36	Realizing a real participation through on-going PCDP	62	A realistic model of further downstream integration	76	Maintaining well-engaged workforce	86	Stewardship in industrial safety	104	Material management	116	Sustainable economic growth in our communities	134
Scope and boundaries	5	Vision and Mission	13	Social development objectives	37	Environment transparency: Beyond compliance	66	Moving beyond the borders as a global player	78	Consolidating a mind-set of a circular economy	90	Safety regulatory compliance	106	Waste management	118	We are caring about community sanitation & health	138
Message from Management team	6	A journey to be a leading tungsten producer	14	Masan Resources' execution strategy	38			Solid base deliverables in production and SCM	80	Ensuring a healthy workforce	94	Enhancing safety culture	108	Energy and greenhouse gas emissions	120	We are caring about our children	140
Awards & recognitions	8	MSR Flagship Assets	16	Masan Resources midterm strategies	39							A secure mining platform	109	Water sourcing and waste water management	122	Making our contribution more inclusive	144
		Our products	18	Logging to the recent context of development	42									Rehabilitation	124		
		Tungsten chemical production	22	Committed leadership	46											Abbreviations	148
		Management structure	24	Integrated framework national and international	48											GRI G4 index	149
				Improved sustainability governance Structure	52												
				Annually reviewed risk management	54												
				Most material topics in 2018	56												



About this Report

This Sustainability Report has been prepared for the purpose of identifying our key sustainability issues, outlining how we address them, and demonstrating our performance throughout 2018. The content of this report is based on the Company's business activities, the interests of the stakeholders, and material aspects that have a large influence on the issues of economy, the environment, and society. A summary of the Company's sustainability performance is provided in the Annual Report of 2018, which is published in parallel with this Sustainability Report.

The Sustainability Report was prepared in accordance with the Global Reporting Initiative (GRI), G4 Guidelines and to meet the requirements of Vietnam's Corporate Sustainability Index (CSI). It reflects the application of and alignment with the recognized international policies, standards and management practices, including the principles set out by the International Council on Mining and Metals (ICMM) Sustainable Development Framework, the United Nations Global Compact (UNGC), the World Bank's guidelines on involuntary resettlement, Environmental and Social Impact Assessment (ESIA) and other policies as well as standards and practices for sustainable society and environment set out by the International Finance Corporation (IFC).

This year's sustainability report is particularly characterized with its adherence to the Sustainable Development Goals (SDGs) and the CSI. This was partly driven by the fact that the Vietnam Chamber of Commerce and Industry (VCCI) recently began to provide a means to assess the level of sustainable development of Vietnamese enterprises.

Scope and boundaries

The main business of the Masan Resources Corporation is the operation of the Nui Phao Mining Company Ltd. (NPMC) and the Masan Tungsten Limited Liability Company (MTC). The scope of the MSR business activities is global, however the content of this report is limited to Vietnam, specifically Dai Tu District, Thai Nguyen Province.

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Dinh Thi Ngoc Bich - Economic Restoration & Sustainability

Message from Management team

Dear Valued Readers,

KEEP GOING – OUR SUSTAINABILITY JOURNEY

We are creating a new global force in strategic materials and doing so in a morally and ethically responsible way.

GLOBAL

The Global Responsible Business Forum held in Singapore last October 2018 has delivered real solutions across critical areas needed for the attainment of the SDGs. The key message from the forum was a call to action, especially to the private sector. Business leaders are encouraged “to be bold and take it personally” and to use the Sustainable Development Goals as a framework to come together to address critical problems that the world are facing today.

VIETNAM

In Viet Nam, under the leadership of the VBCSD-VCCI, the member-networking and capacity building activities concerning sustainable development have been expanded nationwide. In particular, a variety of initiatives such as Advancing Circular Economy in Vietnam and the activities of the P4G Vietnam Forum for green and sustainable growth have been actively promoted throughout the year. Most recently, “Fostering Economic Growth and Inclusive Society for Sustainable Development” has been the theme of the first 2019 Sustainability Forum in Viet Nam held on 17-18 January 2019 in Ha Noi.

MASAN RESOURCES

Masan Resources, who is delivering Strategic Resources from Vietnam into High-Tech Global Materials markets, is currently operating a world-class polymetallic mineral resources and chemical processing plant in northern Vietnam. Its vision is to demonstrate to the world that a Vietnamese company can lead the transformation of the global tungsten market. MSR has embraced the Sustainable Development Goals (SDGs) as the framework for our own development impact, and as a way of articulating the wider benefits of investing in development. Such a ‘smart way’ of investing is not only granting Masan Resources a ‘social license’ for our operations but also our sense of ‘good corporate citizenship’. In other words, we feel that as part of the business community we should also be deeply aware that legal compliance, creation of employment opportunities and contribution to sustainable development are fundamental to being a good corporate citizen.

Looking back to the past 8 years, we never gave up our sustainability journey, instead, we continued with our KEEP GOING ethos and attitude towards sustainable business, economic system and social development. Our efforts in this area have been further materialized throughout 2018, where we brought sustainable development to the heart of our business strategies.

Governance

We made big steps in terms of sustainable governance in 2018. First, MSR became a formal member of the Viet Nam Business Council for Sustainable Development (VBCSD), allowing us to contribute to the on-going development of the Sustainability cause in Vietnam by representing the extractive and chemical manufacturing industries. Secondly within MSR we are contributing to the field of sustainable management through the establishment of the CHES Subcommittee for Community Health, Environment, Safety, and Sustainability as a measure to gauge and promote throughout the organization and contractors our requirements for sustainable development throughout the Company. Finally, 2018 witnessed an extraordinary amount of information disclosed, in the form of site visits, community meetings, workshops, consultations as well as open dialogues between the company and internal and external stakeholders. Moreover, our transparency procedures dictate a focus on reliable & accessible input data, formal reporting, and responsiveness to any concerns of our stakeholders. We found the latter to be of high importance for trust – based relationships with our stakeholders.

Business

Our strategy is made possible with a stable and long-term business model, highlighted by our successful acquisition of minority interests in our Chemical Processing JV, providing global market consolidation and ongoing effectiveness & efficiency of our production management. In 2018, the Company achieved a record net revenue of VND 6,865 billion, a 27.0% increase compared to the 2017 net revenue of VND 5,405 billion. Accordingly, the Company delivered a record attributable net profit of VND 664 billion in 2018, representing a 222% increase compared to the same period of last year on a profit margin of 9.7%. In term of business development, we continue to identify further value accretive upstream and downstream opportunities to enable our business development at a global of scale.

Circular Economy

Advocating for a circular economy, we believe that technology and ecosystems need to coexist. On the one hand, we have

to apply advanced scientific knowledge and techniques in order not only to maximize the recovery rate of our minerals but also to improve the quality of our products so as to optimize the value of the natural resources. On the other hand, we set the targets and implement the ‘3R Approach’ (Reduce, Reuse, Recycle) in all aspects of our operations, with a particular focus on environment protection in mining and mining related activities.

The application of modern technology and advanced production and processing lines at MSR has enabled us to minimize resource losses and maximize the value of natural resources, with a mineral recovery rate of over 96%. Tungsten chemical products such as APT, YTO, BTO are recognized by the Ministry of Industry and Trade as industrial products with purities of over 99%. In order to maintain our globally recognized brand and the reputation of a trusted supplier, MTC keeps investing 1% of its profits, as per statutory requirements, to maintain our “High-Tech” certification.

Workforce

The 2018 witnessed a great effort from our management and the HR team in regards to workforce consolidation, especially in the circumstances of transformation from NP- HC Starck to Masan Tungsten Company (MTC). For this purpose, we have not only increased the efficiency of our workforce through an integrated structure, while maintaining an excellent working environment for our employees, but through the relevant communication and training activities, we have also endeavoured to create and consolidate an innovative mindset of our employees, which is necessary for a new generation of industrial employees in the contemporary context of development.

This active approach has allowed us, as a company, to improve safety awareness and develop a robust safety culture. Unfortunately and despite our best efforts, a noticeable set-back in our company safety performance took place last year and resulted in two lost time injuries (LTI). Both injuries were related to equipment and manual job tasks. An intensive safety campaign was launched to address safety complacency by rolling-out a refresher safety training on hazard awareness, Take-5 and JHA training as well as a refresher training on mobile equipment and safe driving practices. Additional risk training activity, namely management of change (MOC) was also rolled-out to the workforce. All these safety and risk avoidance training activities aim to reinforce and encourage positive safety behaviour that create a strong foundation towards a zero harm working environment.

Community

Finally, our achievements are not only measured through the lens of financial factors, such as revenue, production and debt repayments, but also based on our contribution to the government and to the sustainable growth of the neighboring communities. We understand that the business activity of any enterprise creates certain impacts on all aspects of social life and environment where businesses operate. In particular, MSR contributed more than 1000 billion to the Province in 2018.

In keeping with MSR’s involvement pledge to the community, in 2018 MSR contributed more 5,545 billion VND towards community development initiatives and the CSR activities in Thai Nguyen Province. Our efforts target to address environmental, economic, and social issues in an integrated manner and have already yielded positive results. In particular, our contributions have been recognized in the fields of sustainable agriculture, household’s economic development, community sanitation, healthcare and, children’s well-being. We believe that such community development initiatives can ultimately integrate the role of mining into the broader context of sustainable development and national plans to achieve the Sustainable Development Goals (SDGs).

In recognition of our relentless efforts, Masan Resources have been recently recognized as one of the Top 100 Most Sustainable Businesses in Viet Nam and one of the Top 100 Viet Nam Gold Star, being the most reputable Brands and Rewards for Companies in Viet Nam.

Today, on behalf of Masan Resources, I would like to express my sincere thanks to the shareholders, business partners, government authorities and local communities that have always encouraged and accompanied us. We are committed to keep going through our sustainability journey and are excited that you

Thai Nguyen 31.3.2019



Craig Richard Bradshaw
Chief Executive Officer



Awards and recognition



THE EMULATION FLAG OF THE GOVERNMENT FOR NUI PHAO MINING COMPANY – THE EXCELLENT ENTERPRISE IN THE PATRIOTIC EMULATION MOVEMENT IN 2018

Awarded by
The Government of the Socialist Republic of Vietnam

CERTIFICATE ON MEETING THE CRITERIA OF INTERNATIONAL COMPETITIVENESS CAPABILITY, VIETNAM GOLD STAR AWARD 2018 AND TOP 100 VIETNAM BRANDS OF INTERNATIONAL INTEGRATION, GIVEN TO NUI PHAO MINING COMPANY

Awarded by
Vietnam Youth Enterprises Association

CERTIFICATE FOR TOP 100 SUSTAINABLE ENTERPRISES OF VIETNAM IN 2018, GIVEN TO NUI PHAO MINING COMPANY

Awarded by
Vietnam Chamber of Commerce and Industry

CERTIFICATE FOR TOP 500 FASTEST GROWING ENTERPRISES IN VIETNAM, GIVEN TO MASAN RESOURCES CORPORATION

Awarded by
Vietnam Report JSC

CERTIFICATE FOR TOP 500 BIGGEST ENTERPRISES OF VIETNAM, GIVEN TO NUI PHAO MINING COMPANY

Awarded by
Vietnam Report JSC

CERTIFICATE OF MERIT OF EXCELLENT ACHIEVEMENTS IN THE EMULATION MOVEMENT “THAI NGUYEN JOINTLY WORKED ON NEW-STYLE RURAL AREA” IN 2017

Awarded by
Thai Nguyen Provincial People's Committee

CERTIFICATE OF MERIT OF ACHIEVEMENT IN STATE BUDGET PERFORMANCE IN 2017, GIVEN TO NUI PHAO MINING COMPANY

Awarded by
Thai Nguyen Department of Taxation

CERTIFICATE OF MERIT OF EXCELLENT ACHIEVEMENTS IN THE WORK OF ENSURING SAFETY AND SECURITY OF RADIATION SOURCE AND INCIDENT RESPONSES IN 2016 - 2017, GIVEN TO NUI PHAO MINING COMPANY

Awarded by
Ministry of Science and Technology

CERTIFICATE FOR TOP 50 BRANDS IN VIET NAM, GIVEN TO MASAN RESOURCES CORPORATION

Awarded by
National Office of Intellectual Property of Vietnam

MERIT FOR EXCELLENT ENTERPRISE OF THAI NGUYEN PROVINCE 2018, GIVEN TO NUI PHAO MINING COMPANY

Awarded by
Thai Nguyen Provincial People's Committee

CERTIFICATE OF MERIT OF OUTSTANDING ENTREPRENEUR IN 2018 FOR MR. VU HONG - DEPUTY GENERAL DIRECTOR OF NUI PHAO MINING COMPANY

Awarded by
Thai Nguyen Provincial People's Committee





About Us

- Business overview
- Vision and Mission
- A journey to be a leading tungsten producer
- MSR Flagship Assets
- Our products
- Tungsten chemical production
- Management structure



Business overview

Masan Resources is the largest producer of mid-stream tungsten products outside of China. Its flagship asset, Nui Phao polymetallic mine, located in Thai Nguyen province in Northern Vietnam, is the first tungsten mine successfully developed into production over 15 years. Nui Phao has been identified by leading industry analysts, including Roskill and Argus Media Ltd, as one of the world's largest tungsten mines, with a JORC compliant proven and with probable ore reserves of 66 million tonnes (Government license allows for 83.22 million tonnes of tungsten-polymetallic ore of grades B and C1, divided in the following way: (i) open pit mining: 55,192,000 tonnes and (ii) underground mining 28,028,000 tonnes).

Masan Resources, with its experienced management team, local access, strong execution capabilities, international partners and capital raising abilities, has developed the right platform to grow into a leading global tungsten company.



Vision

FROM VIETNAM STRATEGIC RESOURCES TO HIGH-TECH GLOBAL MATERIALS

Mission

MASAN RESOURCES IS WORKING, WITHIN BEST-IN-CLASS PARAMETERS, TO DEVELOP AND EXPAND OUR BUSINESS WITH THE AIM OF INCREASING SHAREHOLDER VALUE. WE HAVE ASSEMBLED A TEAM OF WORLD-CLASS PROFESSIONALS WITH EXTENSIVE INTERNATIONAL AND REGIONAL EXPERIENCE WHO ARE PASSIONATE TO SHOW THE WORLD THAT A VIETNAMESE COMPANY CAN LEAD THE TRANSFORMATION OF THE GLOBAL TUNGSTEN MARKET.



A journey to be a leading tungsten producer

Masan Resources Corporation

Công ty Cổ Phần Tài Nguyên Masan

English name

Masan Resources Corporation

Abbreviated name

Masan Resources

Head office

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Telephone: +84 28 6256 3862

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Website: <https://masangroup.com/masanresources/>

Enterprise Registration Certificate

No. 0309966889 issued by the Department of Planning and Investment of Ho Chi Minh City on April 27, 2010, as amended for the 15th time on October 3, 2018

Charter Capital

VND8,993,091,220,000

Stock code on Unlisted Public Company Market (UPCoM) of HNX: MSR

The Company was established on April 27, 2010 with a view to undertake mining and resources extraction activities as part of the Masan Group. Significant events in the Company's business are set out below:

2011

Acceleration of project development for the Nui Phao Project.

In March, MRC Ltd., an investment vehicle of Mount Kellett Capital Management L.P., became a shareholder, holding 20% of the Company's charter capital.

In December, the National Mineral Reserves Assessment Council acknowledged the results of the Nui Phao Project's resources and reserve grade conversion.

2012

In February, MOIT's official approval of the Nui Phao Project's basic mine design was obtained.

2013

In January, Private Equity New Markets II K/S, an investment vehicle of BankInvest became a shareholder, holding 2.86% of the Company's Charter Capital.

In June, MRC Ltd. increased its stake in the Company to 21% of the Company's Charter Capital.

In August, the Company received Investment Certificate No. 41122000131 from the People's Committee of Ho Chi Minh City.

2014

The Nui Phao Project started commercial production of Tungsten Concentrate and Copper Concentrate on March 1, Fluorspar Acid Grade on June 1, and Bismuth Concentrate on September 1.

Established Nui Phao – H.C.Starck Tungsten Manufacturing LLC ("NHTCM"), a joint venture with HC Stark GmbH of Germany to construct and operate an advanced tungsten chemical factory in Vietnam.

2015

Record production achieved for all four commodities. NHTCM applied for and obtained the Certificate of High Tech issued by Ministry of Science and Technology on April 24.

Achieved design capacity and successfully commissioned the NHTCM Tungsten Chemical factory. Initiatives undertaken to further ramp up production and increase operational efficiencies.

In September, Masan Resources successfully completed its listing on Hanoi's UPCOM exchange.

In September, MSR hosted the 28th International Tungsten Association (ITIA) annual meeting, attended by over 120 global delegates.

2016

Successfully held the first AGM after listing on April 22; ranked as premium on the UPCOM Board of the Hanoi Stock Exchange.

Commercial Production of Bismuth Cement started from July 1.

Continued innovating and investing in upgrades with an introduction of new processes and technology, cost savings measures, changes in business processes and development of new ways of engagement

NHTCM significantly advanced the production volume and revenue of the value added tungsten chemical processing business.

In December, Masan Group, through its wholly owned subsidiaries, successfully completed the tender offer for shares of Masan Resources, thereby providing an exit to Mount Kellett and increasing its ownership in MSR to 93.78%, paving the way for the next round of strategic capital and growth.

2017

Upgrades undertaken on the tungsten circuit have resulted in tungsten recovery increase to 67% with room for further improvement through optimization measures.

A significant price increase across all commodities coupled with an increased operational efficiency allowed MSR to achieve record results in all aspects of production, revenue and net profit.

MSR's global brand recognition, underpinned by high quality and reliable products resulted in over-subscribed order book with new customers.

Commenced procuring third party tungsten raw materials for processing in the NHTCM factory.

2018

2018 Acquired H.C. Starck GmbH's 49% stake in NHTCM for total cash consideration of USD29.1 million. Subsequent to acquisition, the name of NHTCM has been changed to Masan Tungsten Limited Liability Company ("MTC");

Increased third party raw material procurement by 350% in order to maximize utilization at the MTC as well as to satisfy the growing demand for tungsten chemical products;



14



15

MSR Flagship Assets

NUI PHAO MINING COMPANY LTD (NPMC)

The Nui Phao mine, which is operated by Nui Phao Mining Company Ltd (“NPMC”), a wholly owned subsidiary of Masan Resources, is a polymetallic mine situated within three communes (Hung Son, Ha Thuong, and Tan Linh) of Dai Tu District in Thai Nguyen province. The mine is approximately 80 km from Hanoi and is accessible via highway. Road and rail links connect the mine to the nearest ports of Hai Phong and Quang Ninh, from which the products can be shipped to international customers.

As of 2014 the Nui Phao mine’s proven and probable ore reserves are estimated at 66 million tonnes, with an estimated mine life of 20 years.



The major project components are:

- Open pit mine;
- Waste rock disposal facilities;
- Modern mine plant and facilities, including a crushing plant, grinding, thickening, flotation, and gravity recovery facilities;
- An Tungsten Chemicals Factory that processes tungsten concentrate and other tungsten bearing raw materials into higher value-added Sodium Tungstate, Ammonium Paratungstate, Blue Tungsten Oxide and Yellow Tungsten Oxide;
- A Tailings Storage Facility (TSF) with water and tailings management ponds;
- Buffer zones, relocation sites, haul roads, and mine services.

Products from Nui Phao are shipped to worldwide markets from Quang Ninh Port (in Ha Long City, 197 km to the south-east of the Project site). The port is also used to receive equipment and materials required to run the mine.

NPMC operates at the cutting edge of production of its particular product suite. Investment in research and development continues to deliver processing, equipment and chemical improvements. Processing operations are supported by advanced mining and processing management software to maximize recovery and minimize costs and resource loss.

MASAN TUNGSTEN LIMITED LIABILITY COMPANY (MTC)

Masan Tungsten Limited Liability Company, formerly Nui Phao – H.C. Starck Tungsten Chemicals Manufacturing, was established in 2014 as a Joint Venture between HC Starck GmbH, a leading worldwide manufacturer of technological metals and one of the biggest companies in the global tungsten industry, and Nui Phao Mining Company Ltd, a wholly-owned subsidiary of Masan Resources. The objective of the company is to connect NPMC’s business to the global Tungsten market and enable deep processing of Vietnam’s strategic resources into higher value tungsten chemicals, thus enabling further extraction of value from the Vietnamese strategic resources. In August 2018, NPMC acquired the 49% capital contribution by H.C. Starck GmbH in the Joint Venture. The Joint Venture then changed its name to Masan Tungsten Limited Liability Company (“MTC”).

The four main products of the factory used in production of Tungsten and Tungsten Carbides include: APT (Ammonium Paratungstate); BTO (Blue Tungsten Oxide); YTO (Yellow Tungsten Oxide) and ST (Sodium Tungstate).



MTC produces high purity, world-competitive products while operating in Vietnam. This places it among the few tungsten suppliers outside of China who are directly connected to a resource base. The MTC factory has the advantages of:

- secured long term supply source (NPMC) with modern production facilities able to produce high quality products tailored to specific requirements of customers;
- low conversion costs and preferential tax policies;
- positive market reputation by affiliation with a technology and skills provider – H.C. Starck has almost 100 years of experience and is a leading premium supplier of technology metals.
- Technology transfer from H.C. Stark Germany.

These factors have accelerated the acceptance of a Vietnamese business to the world’s tungsten producer map as well as contributed to improved sales performance.

Our products

Tungsten, Fluorspar, Copper and Bismuth produced at the Nui Phao mine are strategic metals that are important for many industries in the world today.



Tungsten (WO₃)

Tungsten is an extremely hard metal with the highest melting point of all metals and good resistance to corrosion.

Our tungsten chemicals end up in a wide variety of applications. Our customers further process the chemicals into carbides and powders, which in turn are further processed into a range of downstream products.

Due to its unique intrinsic properties, tungsten is ideally suited to the needs of all major heavy industries, such as oil & gas, construction, hard metal tooling, energy, automotive and aviation. Tungsten is also an essential element in the steel industry, where its usage ranges from the production of stainless steel, steel alloys to super alloys.

Fluorspar (CaF₂)

Fluorspar is an industrial mineral with a number of downstream uses. Its most notable uses are in the production of hydrogen fluoride (HF), various steel and aluminum products, glass and ceramic manufacture and in the growing nitrogen trifluoride (NF₃) sector. As examples of products, air conditioners, Teflon products and fluoxetine medicines all use downstream processed fluorspar.

HF is primarily used in the production of refrigerants, fluoropolymer coating and many other pharmaceutical and research purposes. In the steel and aluminum industry, smelting fluorspar is used to enhance the quality of end products. In the manufacture of glass and ceramics, fluorspar is used to make translucent glass and opaque enamels. Nitrogen fluoride is a cleaning gas used in the manufacture of semi-conductors and LCD screens.

Copper (Cu)

Copper is a soft and malleable metal, and is, after silver, the best natural conductor of heat and electricity.

The largest use of copper is in the manufacture of electrical cables and wiring. The construction industry is the major consumer of copper through electrical systems as well as in plumbing. Its corrosion resistance as well as its aesthetic appeal have made it popular in roofing, and it is commonly found in the construction of domes, spires and doors. Copper has nutrient qualities and is used as a fungicide in the protection of crops and plants as well as enriching the soil. When copper is mixed with zinc it produces brass, which is also used in a variety of industrial applications.

Bismuth (Bi)

Bismuth is a base metal with consumer and industrial applications.

For the consumer, bismuth-based chemicals are used in the health and pharmaceutical sector through radiation protection and medicines for treatment of nausea, indigestion and ulcer diseases. Due to its non-toxicity, it has also found use in cosmetics. Industrially, Bismuth is used as a non-toxic pigment in the production of certain paints and in the manufacture of electrical components. Bismuth is also used as a catalyst for vehicular emissions control, as well as in the production of reliable work holding devices for heavy machinery such as turbines.



TUNGSTEN COMMODITY

Tungsten applications

Tungsten is a rare, earth transition metal. Its use in heavy industries is well-documented and is attributed to its superior physical properties, such as high melting temperatures and hardness. However, tungsten together with its compounds is becoming of growing importance to electronics and display technologies and certain niche applications.

Scanning electron microscope image of tungsten oxide nanowires

In addition to its use as a filament in incandescent light bulbs, it is being increasingly used as a material of choice in the design of field emission guns, used in electron microscopes¹, integrated circuits (ICs), and, due to its high molecular density, as a shielding material from high-energy radiation sources.

Tungsten is also used in the nanoelectronics technology for fabrication of nanowires², due to its high surface to volume ratio, with the expected applications as ph (potential of hydrogen) probes and gas sensors.

Smart window used in newest generation of Boeing 787 aircraft

Oxides of tungsten have been shown to exhibit the electro-chromic (EC) effect, i.e. have the ability to reversibly change colour under the influence of an external field. This effect has been used in display technologies^{3,4} to create smart windows, i.e. windows whose optical transparency can be increased or decreased. For example, the latest aircraft by Boeing 787⁵, instead of plastic window shades uses smart

glass in order to allow the passengers to electrically adjust the level of sunlight and visibility. It is expected that the production of smart windows will increase and by 2021 its contribution to the construction market will increase to \$1.3 billion, compared to \$280 million in 2016⁶.

One of the niche applications of tungsten lies with the jewellery industry, where metallic tungsten has drawn a great deal of attention, due to its fashionable appearance. The above mentioned use of tungsten for future applications is, by no means, exhaustive. Rather, it is meant to show that tungsten is finding increasing use for different applications, in addition to its traditional use in heavy industries.

Tungsten for a cleaner environment



Tungsten is the heaviest chemical element known to be biologically active. Its toxicity is rather low, especially when compared to other metals, however, this is the subject of ongoing studies. In the strive for a cleaner environment, lead has been identified as one of the metals that needs urgent replacement. According to the US Government's Top 100 Hazardous Substances Priority list¹, lead is ranked second. Furthermore, the US Environmental Protection Agency has listed lead as a toxic chemical and have set threshold limits for its concentrations in the air, soil, water and vegetation.

Due to the molecular density similarities between lead and tungsten, tungsten has been proposed as a possible substitution of lead. However, a higher cost and a greater level of machining difficulty of tungsten have often been cited as big obstacles to its introduction, despite its greater level of recycling compared to lead.

An alternative lies with tungsten polymer composites^{2,3}. It is a composition of various resins and tungsten powders, which

are mixed together to create thermoplastic tungsten, with the final material density matching that of lead². Such a material is easily malleable, has no toxic constituents and it is resistant to corrosion by weather elements. In addition to its easily mouldable shapes, thermoplastic tungsten exhibits no harmful effects while handling/processing and can be recycled without any without detrimental effects to the environment, making it a viable alternative to lead. In addition to being a good substitute for lead, tungsten polymers have also been proposed to replace depleted uranium in certain applications. The mains reasons for this lay in the similarities in the similar densities of depleted uranium and tungsten composites, however, tungsten composites bear no health risks.

The demand for tungsten is set to continue in future. This, coupled with the dire need for an alternative for lead, is also predicted to increase the cost of tungsten composites, which makes it an attractive investment opportunity.



Engine



Smart window used in newest generation of Boeing 787 aircraft

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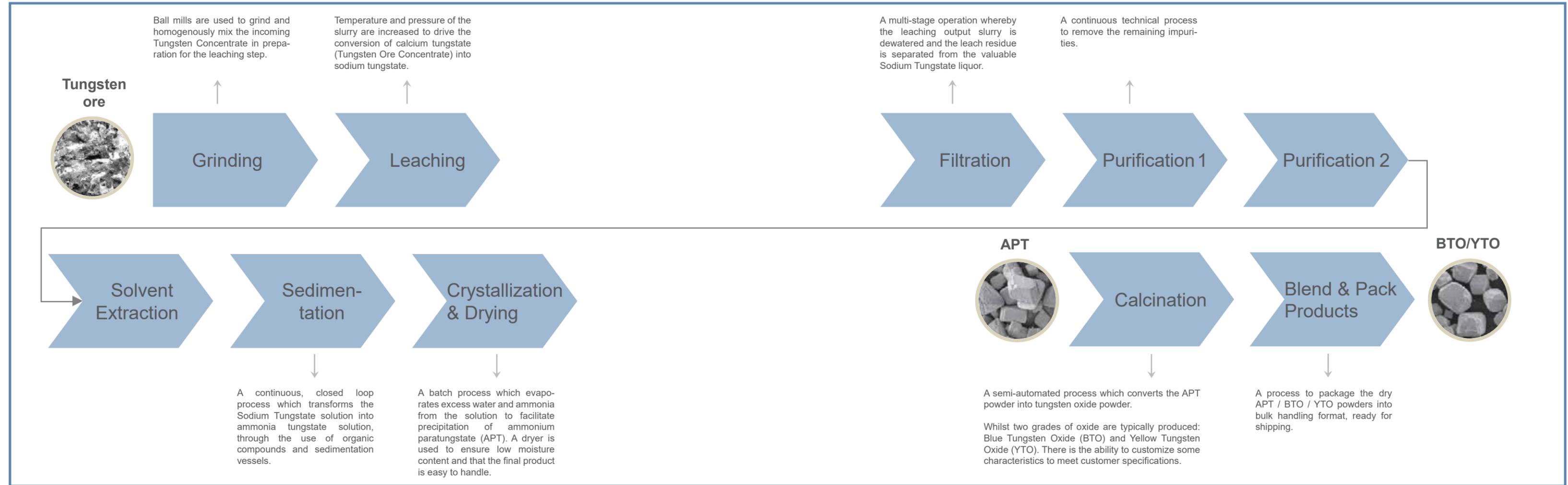
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Tungsten chemical production

The following is a brief description of the current chemicals production of Masan Resources. The plant is designed to process all the Masan tungsten concentrate into high grade Ammonium Paratungstate (APT) via chemical digestion followed by physical and chemical purification and, finally, crystallization. APT which is then packaged for sale, or undergoes calcination to produce Tungsten Oxides for sale.



Management structure

GENERAL MEETING OF SHAREHOLDERS

The General Meeting of Shareholders is the supreme authoritative body of the Company. The annual General Meeting of Shareholders shall be organized once a year. The annual General Meeting of Shareholders shall be convened within 4 months from the end of the financial year, or as may be extended, but not beyond 6 months as from the end of the fiscal year, to the extent permitted by the business registration authority and at the request of the Board of Directors.

MSR BOARD OF DIRECTORS

The Board of Directors is responsible for the overall management and direction of the Company. The Board of Directors typically meets when required, but at least every quarter, to review and monitor the Company's financial position and operations.

The current Board of Directors comprises four (4) members. The term of the Board of Directors is five years. The term of each member of the Board of Directors shall not exceed five years, with a possibility of re-election at the end of the term. The Board of Directors may elect, dismiss or remove the Chairman of the Board of Directors.

MSR MANAGEMENT TEAM

List of members of the Management Team



Mr. Craig Richard Bradshaw
Chief Executive Officer



Mr. Nikhil Kamran
Chief Financial Officer
(resigned on August 23, 2018)



Ms. Nguyen Thi Thanh Mai
Chief Accountant

Mr. Craig Richard Bradshaw (Chief Executive Officer) has over 25 years' experience in the mining business, spanning mining and processing operations, logistics, and sales and marketing in Australia, Thailand and Lao PDR. Mr. Bradshaw was previously Senior Commercial Manager for Lang Xang Minerals Ltd Sepon Mine. He has also previously served as the Country General Manager for Thailand for Toll, Australia's largest fully integrated logistics service provider. Prior to this Mr Bradshaw worked in management roles for Mount Isa Mines Limited ("MIM") and Xstrata.

Mr. Nikhil Kamran (Chief Financial Officer) Mr. Nikhil Kamran has more than 13 years of financial experience across a range of sector including real estate, gaming, lodging, agriculture and media. Prior to joining Masan Resources, Mr. Kamran was the Director of Finance at a private equity company where he originated and managed mandates that ranged from corporate finance, corporate restructuring, M&A and IPOs. Mr. Kamran graduated from the University of Pennsylvania, USA.

On August 23, 2018, due to personal reason, Mr. Kamran submitted his resignation letter from the position of Chief Financial Officer of MSR which was approved by the Board of Directors.

Ms. Nguyen Thi Thanh Mai is a Bachelor of Accounting at National Economics University and holds an Auditor Certificate issued by the Ministry of Finance. She has more than 10 years of experience in auditing at Arthur Andersen Vietnam Limited Company and KPMG Limited. Prior to joining MSR, she was the Chief Accountant in charge of accounting, finance and tax at Ban Phuc Nickel Mines Limited Liability Company in 12 years.

List of members of the Board of Directors



Mr. Chetan Prakash Baxi
Chairman of the Board of Directors

Independent BOD member since December 20, 2013



Dr. Nguyen Dang Quang
Member of the Board of Directors

Non-Executive BOD member since February 18, 2013



Mr. Nguyen Thieu Nam
Member of the Board of Directors

Non-Executive BOD member since February 18, 2013



Mr. Nguyen Van Thang
Member of the Board of Directors

Independent BOD member since April 22, 2016



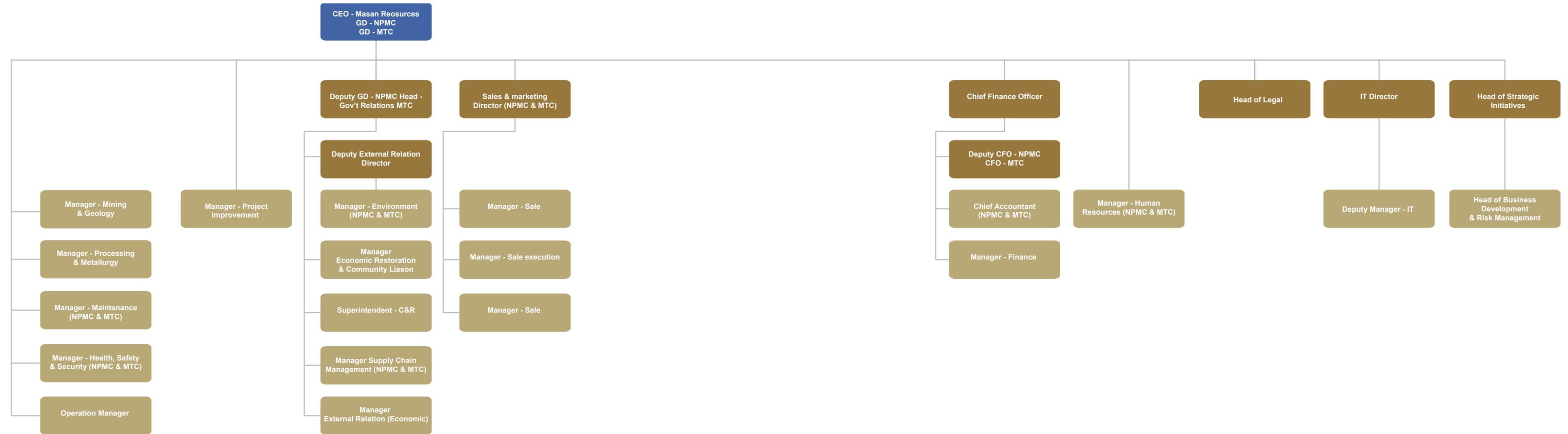
Mr. Dominic John Heaton*
Member of the Board of Directors

Non-Executive member* April 22, 2016

* Mr Dominic John Heaton: submitted his resignation letter dated July 26, 2018



THE ORGANIZATION CHART OF MSR



MANAGEMENT STRUCTURE OF NPMC

Members of the Members' Council of NPMC

The rights and obligations of the Members' Council, the Chairman and the General Director are regulated by the charter of NPMC. According to the charter of NPMC, the Members' Council is the highest decision-making body of NPMC and consists of a maximum of four (04) members, of which up to three (03) members are to be appointed by MRTN and one (01) member is to be appointed by TNTI.

The Members' Council is responsible for the management of the businesses and for the appointment of principal senior management of NPMC. Chairman of the Members' Council is nominated by MRTN and elected by the Members' Council. The term of office of the Chairman is five years, and can be re-elected without any limit.

List of the members of the Members' Council of Nui Phao Mining



Dr. Nguyen Dang Quang
Member of the Board of Directors

Non-Executive BOD member since February 18, 2013



Mr. Nguyen Van Thang
Member of the Board of Directors

Independent BOD member since April 22, 2016



Mr. Nguyen Thieu Nam
Member of the Board of Directors

Non-Executive BOD member since February 18, 2013



Mr. Chetan Prakash Baxi
Chairman of the Board of Directors

Independent BOD member since December 20, 2013

Management Team of NPMC



Mr. Craig Richard Bradshaw
General Director

Mr. Craig Richard Bradshaw (General Director) has over 25 years' experience in the mining business, spanning mining and processing operations, logistics, and sales and marketing in Australia, Thailand and Lao PDR. Mr. Bradshaw was previously Senior Commercial Manager for Lang Xang Minerals Ltd Sepon Mine. He has also previously served as the Country General Manager for Thailand for Toll, Australia's largest fully integrated logistics service provider. Prior to this Mr Bradshaw worked in management roles for Mount Isa Mines Limited ("MIM") and Xstrata.



Mr. Nikhil Kamran
Chief Financial Officer

Mr. Nikhil Kamran has more than 13 years of financial experience across a range of sector including real estate, gaming, lodging, agriculture and media.

Prior to joining Masan Resources, Mr. Kamran was the Director of Finance at a private equity company where he originated and managed mandates that ranged from corporate finance, corporate restructuring, M&A and IPOs. Mr. Kamran graduated from the University of Pennsylvania, USA.

Mr. Kamran resigned from his position as Chief Financial Officer of NPMC and ceased to be in this position as from August 23, 2018.



Mr. Vu Hong
Deputy General Director

Mr. Vu Hong has more than 30 years of experience in project development including six years at the World Bank, which took him from Vietnam to Lao PDR, East Timor, China and the Philippines. Mr. Vu Hong graduated from Hanoi Water Resources University and has a Master's degree in Hydrology from the University of Roorkee, India. Mr. Vu Hong is a member of the executive committee of the Business Association of Geology and Minerals of Vietnam (VAGME).



Mr. Tony Fitzgerald
Sales & Marketing Director

Mr. Tony Fitzgerald has more than 25 years of experience in the metals industry across a range of commodities and products including refined copper, zinc, lead and mineral concentrates. Mr. Fitzgerald has worked with Pasmenco, MIM, Xstrata, Transamine and Louis Dreyfus in marketing, international sales, metals trading, business development and mine to market logistics. He holds a BA in multi-disciplinary from Victoria College, Australia.

MANAGEMENT STRUCTURE OF MTC

According to the Charter of MTC, the organizational structure of MTC consists of the Members' Council and the General Director. The Members's Council is the supreme decision-making body of MTC and consists of a maximum of four (04) representatives appointed by NPM and TNTI, of which up to three (03) representatives are to be appointed by NPM and one (01) representative is to be appointed by TNTI.

The Members' Council is responsible for the management of the businesses and for the appointment of principal senior management of MTC. The Members' Council has one Chairman who is nominated by NPMC and elected by the Members' Council. The term of office of the Chairman is five years, and can be re-elected without any limit.

List of the members of the Members' Council of Nui Phao Mining



Mr. Nguyen Van Thang
Chairman of the Members' Council



Mr. Chetan Prakash Baxi
Member of the Members' Council



Mr. Craig Richard Bradshaw
Member of the Members' Council

Management Team of MTC



Mr. Craig Richard Bradshaw
General Director

Mr. Craig Richard Bradshaw (Chief Executive Officer) has over 25 years' experience in the mining business, spanning mining and processing operations, logistics, and sales and marketing in Australia, Thailand and Lao PDR. Mr. Bradshaw was previously Senior Commercial Manager for Lang Xang Minerals Ltd Sepon Mine. He has also previously served as the Country General Manager for Thailand for Toll, Australia's largest fully integrated logistics service provider. Prior to this Mr Bradshaw worked in management roles for Mount Isa Mines Limited ("MIM") and Xstrata.



Mr. Rajul Bagrodia
Chief Financial Officer

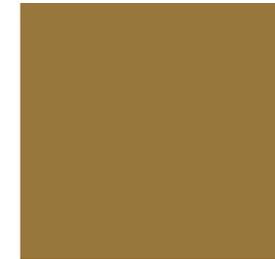
Mr. Rajul Bagrodia (Chief Financial Officer - MTC) has more than 12 years of experience in finance and control function across a range of sector including mining, automobile, real estate and consultancy services in India, Africa and Europe. Prior to joining Masan Resources, Mr. Bagrodia was previously Internal Auditor for Auto components manufacturing company in Europe where he originated and managed mandates that ranged from setting up finance system for green field projects, turnaround stressed assets, due diligence and operation process reviews. Mr. Bagrodia is Chartered Accountant from the Institute of Chartered Accountants of India, India.



Miroslaw Banaczkowski
Operations Manager

Mr. Miroslaw Banaczkowski has more than 30 years' experience in the mining and processing business including commissioning, design and construction, operations, metallurgy, Technical and Engineering in Australia, Laos, New Caledonia. Prior to joining to Masan Resources, Mr Miroslaw has worked with MMG, Vale, Scott Dalley Francks, Minara Resources (Glencore International), Energy Resources of Australia - Ranger Mine (North Limited), and Pasmenco Metals EZ – Hobart (North Limited). He holds a Bachelor's degree of Applied Science in Metallurgy from South Australian Institute of Technology.





SUSTAINABILITY COMMITTEE

List of members of the Sustainability Committee:

No.	Members of Sustainability Committee	Position	Day becoming member of the Sustainability Committee	Number of attendance	Percentage	Reasons for absence
1	Mr. Dominic John Heaton	Committee Chairman	April 22, 2016	2/2	100%	
2	Mr. Chetan Prakash Baxi	Member	June 23, 2017	2/2	100%	
3	Mr. Craig Richard Bradshaw	Member	June 23, 2017	2/2	100%	
4	Mr. Vu Hong	Member	June 23, 2017	2/2	100%	
5	Mr. Nguyen Van Thang	Member	June 23, 2017	2/2	100%	
6	Mr. Tran Phuong Bac	Member	June 23, 2017	2/2	100%	

RISK COMMITTEE

List of members of the Risk Committee:

No.	Members of Risk Committee	Position	Day becoming member of the Risk Committee	Number of attendance	Percentage	Reasons for absence
1	Mr. Chetan Prakash Baxi	Committee Chairman	April 22, 2016	1/1	100%	
2	Mr. Dominic John Heaton	Member	September 21, 2017	1/1	100%	
3	Mr. Craig Richard Bradshaw	Member	September 21, 2017	1/1	100%	
4	Mr. Nikhil Kamran	Member	September 21, 2017	1/1	100%	
5	Mr. Morgan Carroll	Member	September 21, 2017	1/1	100%	
6	Mr. Tran Phuong Bac	Member	September 21, 2017	1/1	100%	
7	Mr. Pham Nguyen Hai	Member	September 21, 2017	1/1	100%	

* Note: Mr. Nikhil Kamran ceased to be a member of the Risk Committee as from August 23, 2018.



Sustainability

at Masan Resources

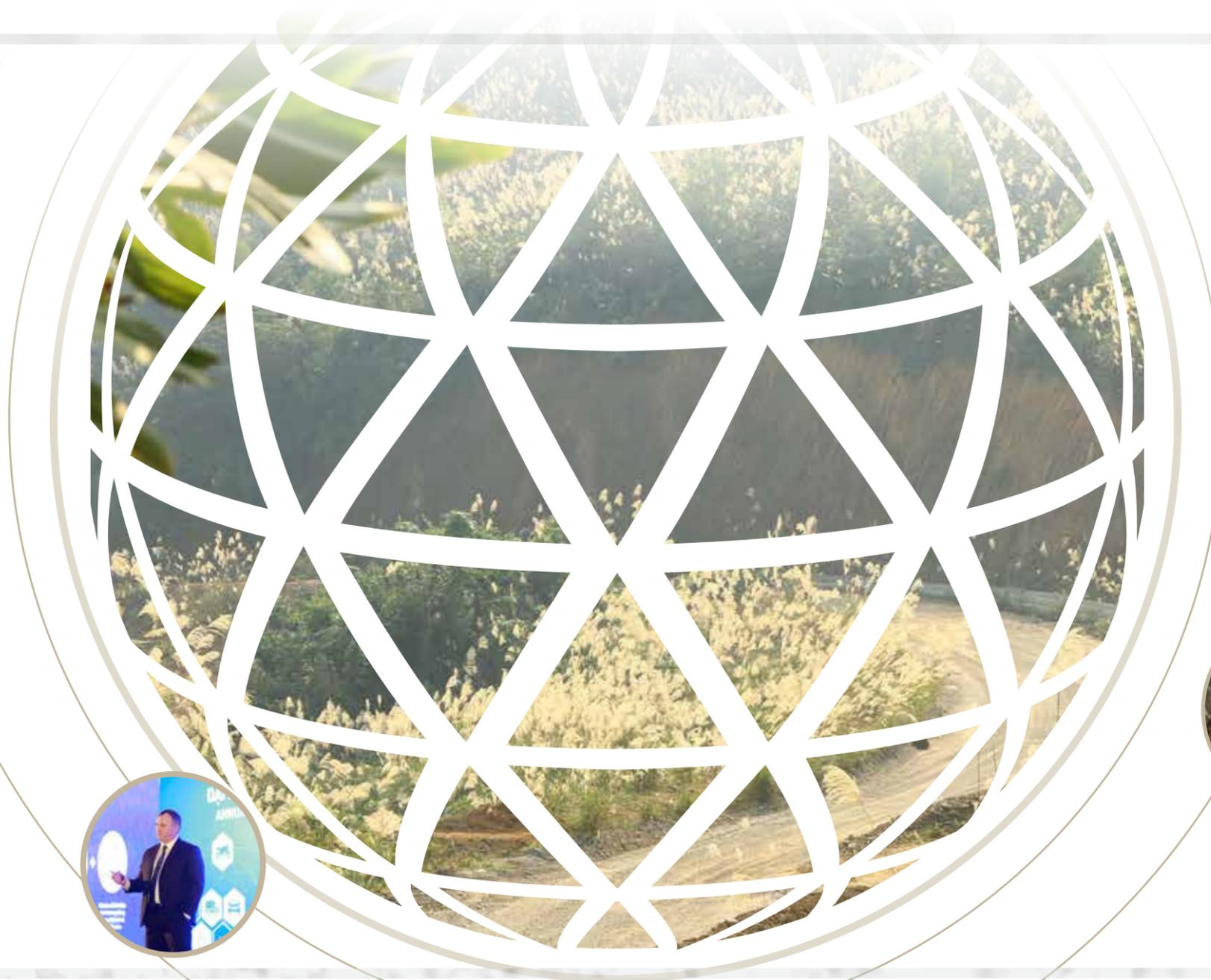
- Company development objectives
- Social development objectives
- Masan Resources' execution strategy
- Masan Resources midterm strategies
- Logging to the recent context of development
- Committed leadership
- Integrated framework national and international
- Improved sustainability governance structure
- Annually reviewed risk management
- Most material topics in 2018



Company development objectives

MSR aim to provide industrial chemical products from tungsten, fluorspar and bismuth with superior quality to our customers in all key global industries focusing more towards strategic and high-tech customers;

We pride ourselves on working together with our customers to continuously support developing specific products and product efficiencies and emergent industry initiatives.



Social development objectives

Ensure our industrial chemical products remain the leading products in the eyes of our customers;

Maintain the most efficient manufacturing facilities to maintain strong cost effectiveness in the market;

Continuous work to enhance our processes and systems, to support the changing needs of industrial customers;

Safeguard the ecosystems of our people, our environment, our stakeholders; and,

Ensure superior financial results on a long- term sustainable basis.

Masan Resources' execution strategy

Masan Resources midterm strategies

Our execution strategy for building our business is focused around three key areas:

Local knowledge and understanding to facilitate project execution and asset optimization

Masan Resources believes that a strong local understanding of community concerns and local sensitivities is critical for successful project development. We have been able to create a favorable business environment to develop operate and optimize the Nui Phao mine and processing facility and the Masan Tungsten Chemicals Factory by working proactively with our local communities.

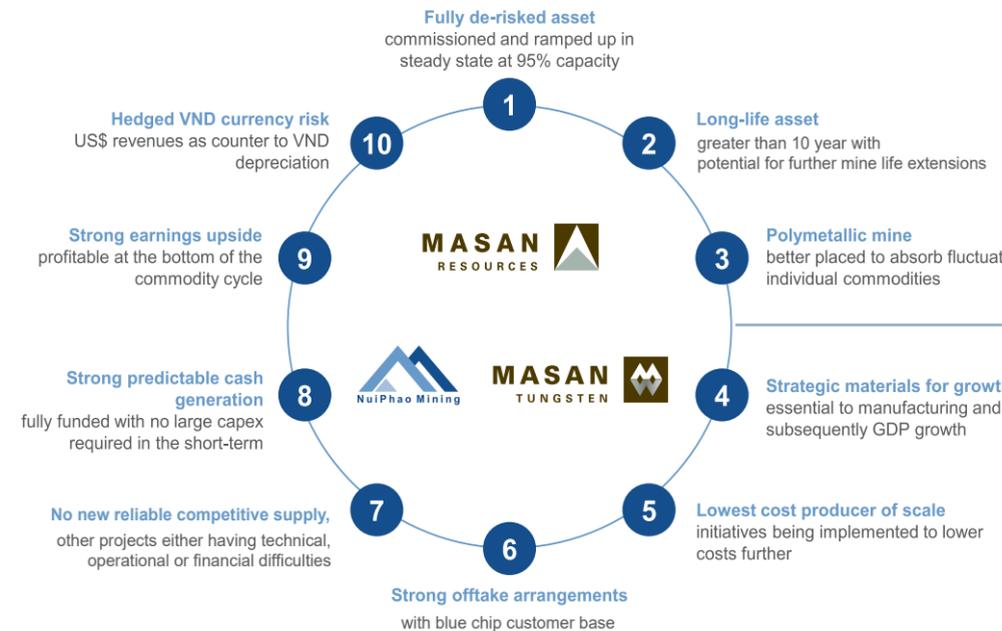
Use our ability to access to capital and cash flows to acquire and develop quality assets

On identification of value accretive scalable assets, Masan Resources has the ability to access internal and external capital to acquire, develop and stabilize these assets to insure the realization of sustainable long-term shareholder value.

De-risking projects through the Masan platform

Masan Resources is hedged against commodity price fluctuations through the diversification of its portfolio of metals and minerals. Masan Resources' low operational and financial risk is a result of its management's ability to leverage their and Masan Group's vast investor and partner network.

BUILDING ON THE FIRST TUNGSTEN SUCCESS STORY OVER 15 YEARS AS A STEADY PLATFORM



TO MASAN RESOURCES MID-TERM OBJECTIVES

Consolidate APT tungsten market share from 36% to 50%+ by increasing our Tungsten Chemical Plant capacity to 12,000 metric tons by 2021.

Develop tungsten recycling capabilities as a complimentary source of tungsten raw materials and an ongoing sustainable supply.

Become a global industrial minerals player by 2020.

Explore further value add opportunities across the Tungsten, Fluorspar, Copper, Bismuth and Gold products that Masan Produces.

TO ACT ON MARKET OPPORTUNITIES...

One of the worlds largest operating tungsten mines with resources underpinning a long-term inventory of raw materials

Established, experienced and proven management team

Cashflow generating project enabling self-funding of future projects

Largest Ex China primary supplier of upstream tungsten products with 38% market share

Lowest cost producer of scale with AISCC1 of ~\$83/mtu

Backed by Masan Group + Equity as currency

Scale + Global influence

Technology + Operational capabilities

Long-term funding

TO TRANSFORM THE MARKET AND BECOME A CONSUMER FOCUSED COMPANY

Optimization

- Superior cost management
- Production and innovation to increase and optimize asset efficiency
- Focus on Strict cost control to remain a low cost producer
- Debt reduction
- Refinance existing debt to cheaper US\$ funding

Go midstream

- M&A to build position as a mid-stream processor
- Secured, cost competitive feed-mix
- Reduction in volatility of end products
- Increased market exposure

Increase upstream supply

- Targeting upstream market share >50% and growing inventory of in-ground warehouses
- Strict selection criteria

Go downstream

BE THE END MANUFACTURER OF TUNGSTEN PRODUCTS
 Become the 'intel of tungsten'
 Productivity, innovation, brand



Logging to the recent context of development

GLOBAL

The Global Responsible Business Forum held in Singapore last October 2018 has delivered real solutions across five areas critical to the attainment of the SDGs, which were Climate action, Urbanisation, Circular economy, Human rights, Food & nutrition. Important issues such as plastics in the ocean, the increase in loss of biodiversity, improvement of supply chains and feeding the world's growing population, are critical problems that the world are facing today. The key message from the forum was a call to action, especially to the private sector. Business leaders are encourage "to be bold and take it personally" and to use the Sustainable Development Goals as a framework to come together to address issues ⁽¹⁾.



In the recent years, the concept of a circular economy was designed to overcome the limitation caused by the exhaustion of natural resources. An economy which relies on the use of commodities which are not renewable and will be exhausted after a certain period of time, is considered to be unsustainable



(1) Sources: <http://www.responsiblebusiness.com/forum/videos-forum/time-extraordinary-opportunity-transformation-achim-steiner-rbf-singapore-2018/>

VIETNAM

In Viet Nam, the government remains the most critical actor in strengthening sustainable economic growth and inclusive society, by designing and enforcing the policies and legislation that will drive change amongst businesses, public institutions and the mass organizations, and building incentive structures that reward first movers.

Significant annual activities, such as the National Conference on Sustainable Development and the Program on Benchmarking and Announcing Sustainable Businesses in Vietnam was continued to attract interest from companies, particularly small and medium-sized ones. The Corporate Sustainability Index (CSI) was designed to match practical requirements and further introduced to the business community through training courses on sustainability reporting and CSI application.

The National Council for Sustainable Development and Competitiveness Improvement was established as an advisory body for the Government and the PM in building and implementing strategies, policies, plans, programmes, tasks and measures for the effective implementation of the National Plan of Actions in order to meet the 2030 Agenda for Sustainable Development.

In 2018 the National Council has been consolidated by a new chairman- the Deputy Prime Minister Vu Duc Dam, followed by the establishment of a new professional body of the National Council, The Private-Public Partnership Committee.

Under the leadership of the VBCSD-VCCI, the member-networking and capacity building activities concerning sustainable development have been expanded nationwide. In particular, a variety of initiatives such as Advancing Circular Economy in Vietnam and the activities of the P4G Vietnam Forum for green and sustainable growth have been actively promoted throughout the year. Most recently, "Fostering Economic Growth and Inclusive Society for Sustainable Development" has been the theme of the first 2019 Sustainability Forum in Viet Nam held on 17-18 January 2019 in Ha Noi.

(2) Sources: VBCSD Chairman Message 2018

In light of the message from the chairman of VBCSD- VCCI, in 2019 companies will be continuously encouraged, promoted and supported to gradually bring sustainable development to the heart of business strategies, and to become the "breath of life" of every company ⁽²⁾.



THAI NGUYEN PROVINCE

In recent years, Thai Nguyen province has been characterized by stable economic development thanks to the investment by multinational corporations and major economic groups in and outside the country. The province has accumulated socio-economic development in a stable and sustainable manner: the average Gross Regional Domestic Product (GRDP) over 3 years (2015-2017) increased over 14%, GRDP per capita reached 68 million VND / person / year, leading to an annual revenue increase of 25.5%.

In 2018 the industrial production revenue stood at over VND 670,000 billion (equivalent to around 300 million USD), an increase of about 13.4% compared to the annual plan; GRDP per capita reached 77.7 million VND / person / year (equivalent to USD 3.200 / person/ year), an increase of about 9.7 million compared to 2017. In particular, Thai Nguyen province achieved a total value of industrial production (SXCN) of over VND 700 trillion - ranking first in the Northern midlands and mountainous areas, ranking second in the Hanoi Capital Region. This was thanks to a great effort of the business community in the area where Masan Resources was mentioned as one of the two largest production companies of the province, next to Sam Sung. By the end of 2018, Thai Nguyen had 2 out of 9 district units, namely Thai Nguyen City and Song Cong City, approved by the Prime Minister to complete the task of building new rural areas and 19 communes reached new rural standards, bringing the total number of new rural communes to 87, reaching 60.8% of total communes in the province.

To continue attracting investments into Thai Nguyen province, so as to contribute to the achievement of its socio-economic development objectives and gradually allow Thai Nguyen to become a modern industrial province, the Thai Nguyen PPC has organized an investment promotion conference in 2018 with the aim of not only spreading information on the potential and strengths of Thai Nguyen, but also to update domestic and foreign investors on the investment policies, thus creating a forum for direct meetings and talks between the provincial government and investors and international organizations. Especially, in 2018, for the first time, Thai Nguyen organized an open dialogue between enterprises and representatives from the National Assembly, the People's Council, the People's Committee and the Provincial Fatherland Front Committee as well as the provincial functional departments.

In 2019, Thai Nguyen intends to focus on diversifying economic development by integrating technology into the core strengths of the province – agriculture. Given that Thai Nguyen has a high economic growth rate of 10.44% (the whole country increased by 6.98%) Thai Nguyen set forth the objective to become the fastest growing province in Viet Nam.



BUSINESSES

Looking across the global mining map, Canada, Australia and Africa are dominant, resource-rich areas with an untapped potential. However, the mining industry is cyclical and that in turn forces companies to look for new resources and new opportunities in new and emerging markets. One such emerging market is Vietnam. From the mining point of view, Vietnam is the very definition of untapped potential. With more than 5,000 deposits of more than 60 different types of metals, including 7% of the world's reserves of bauxite, Vietnam could very well be a major mining market of the future. In particular, Thai Nguyen has rich mineral resources such as coal with a reserve of about 90 million tonnes (the second largest in Vietnam, after Quang Ninh coal mine), iron ore with a reserve of more than 50 million tonnes, and a tungsten reserve of about 21 million tonnes. These are the advantages that investors can explore through deep processing of minerals, which can be later used in various industries, thus contributing to the government budget. In order to turn this possibility into reality, not only will it require investment but it will also be in need of effective leadership and a network of international partners to collaborate as part of a platform to drive this market.



Committed leadership



At MSR, the commitment to sustainability began at the top level. Our operations are driven by the directives set out by our Board of Directors, who have the duty to align our sustainability policies and strategic goals with our business vision. Accordingly, sustainability initiatives are integrated with other business goals. As the results, sustainability performance is included in employee performance review taken place every year.

The Company is proud to have become a member of VBSDC in 2018. As part of the VBSDC, MSR joins the group of leading enterprises of Sustainable Development in Vietnam, who are committed to the goal of promoting the sustainable development initiatives in the country and contributing to the joint efforts of the VBSDC sustainability roadmap in Viet Nam as well as worldwide.

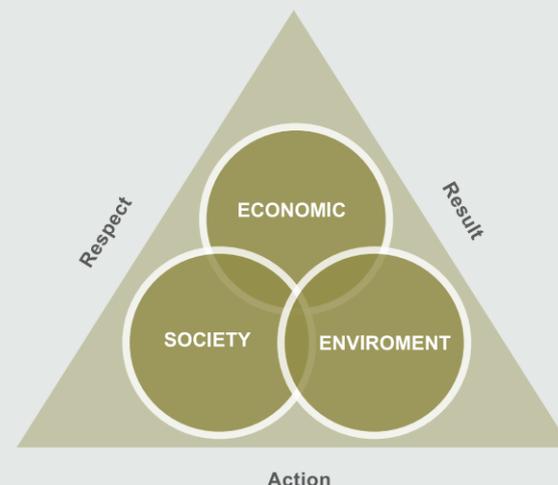


OUR VALUE

At Masan Resources, we continue to fund our decisions, even during the toughest of times, in our corporate Values of Respect, Actions and Results.

These three values are reflected in the Company's Code of Ethics and Business Conduct. Our Code reaffirms the high standards of business conduct required of all our employees, officers and directors. It was created as part of our continuing effort to ensure that we all comply with all applicable laws, and act responsibly and with integrity with our customers, suppliers and the wider community.

Our core values govern our approach, meaning that we place equal importance on investor returns, people and community, the environment and sound governance that adheres to our ethics.



OUR GUIDING PRINCIPLES

- 1 Regulatory:** To meet or exceed all national and provincial statutory laws and regulations, applicable international treaties and agreements.
- 2 Consultation:** To respect the values of the local community and to develop a meaningful consultation process with local stakeholders in the design, review and implementation of the project. To build long-term relationships based on mutual respect, trust, common objectives, consultation and consensus. To provide a transparent, open and honest description of the potential impacts associated with mining and processing activities.
- 3 Re-settlement:** To conduct re-settlement only where absolutely necessary, including fair compensation for land assets, expenses, and income loss due to disruption of livelihoods.
- 4 Environmental Management:** To assess and address cumulative impacts of existing projects (baseline), the proposed project operations, and anticipated future projects (expansion/closure/remediation).
- 5 Safety & Health:** To ensure the protection of human health, cultural properties, and biodiversity, including endangered species and sensitive ecosystems. To develop and maintain strong leadership with respect to health and safety, in order to fully address the issues surrounding the use of dangerous substances, major hazards, occupational health and safety, fire prevention, life safety, and dam safety.
- 6 Labour:** To minimise the utilisation of immigrant workers and maximise local employment by providing training, education, and community development opportunities for semi-skilled and skilled workers, prior to project development. Employ non-skilled and semi-skilled labour from the local area wherever possible.
- 7 Gender Equity:** To actively promote and monitor gender equity in all aspects of operations including sexual harassment, day care, maternity/paternity benefits, gender specific health care, and wage equity.
- 8 Responsible Product/Process Design:** To sustainably develop and use renewable natural resources, and to ensure efficient production, delivery and use of energy, pollution prevention and control, waste minimisation, and solid and chemical waste management.
- 9 Institutional Building and Community Development:** To support capacity building, training and socio-economic initiatives for the local community and government.
- 10 Continuous Improvement:** Full integration of environmental and social management plans into all aspects of operations. To review, test and audit the performance of environmental, social, safety and health monitoring in a practical and comprehensive manner.



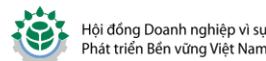
Integrated framework national and international

Masan Resources are committed to compliance with international standards of corporate governance for the sustainable and long-term development of the Company. Therefore, Nui Phao is being developed in a manner that complies with Vietnamese regulatory requirements and World Bank guidelines/policies on social and environmental safeguards, the IFC Sustainability Framework and the Sustainable Development Framework issued by the ICMM for the mining sector. MSR also advocates for Sustainable Development Goals (SDGs) defined the United Nation (UN). We do so by integrating these practices into all business areas towards highest standards of transparency and consistency.



The Corporate Sustainability Index (CSI) has been announced by the Vietnam Chamber of Commerce and Industry (VCCI) to provide the business community with an effective management and business strategy. The set of CSI indicators has been developed as a measure to assess the level of sustainable development in the economic, environmental and social sectors of enterprises. The CSI indicator set is the first set of indicators for Vietnam in sustainable development. The CSI Index of 2018 has 132 criteria, which is close to the Global Reporting (GRI) Standard, in accordance with Vietnamese law.

The integration of international standard practices and conventions along with the current regulations of Vietnamese law has created the advantages of CSI.



In addition, the easy-to-use CSI Index is applicable to all businesses of all types, scales and sizes. Applying the CSI, enterprises can localize gaps in governance, in their current operations to minimize risks, or vice versa, identify their own advantages and capture potential business opportunities. The CSI set of indicators has also been included in the Resolution 19 by the Government on continuing to improve the business environment, improving national competitiveness in 2018 and the following years.

Besides, the CSI is also used as a criterion for selecting and evaluating the Sustainable Development Enterprise Awards granted by the Vietnam Chamber of Commerce and Industry (VCCI) and the Vietnamese Business Council for Sustainable Development (VBCSD) held annually.



APPLICABLE STANDARD

SUMMARY

Equator Principles

The Equator Principles are a voluntary initiative for private financial institutions in determining, assessing and managing environmental and social risk in project financing.

The Principles categorize the risk of a project in accordance with internal guidelines based upon the environmental and social screening criteria of the IFC and other international agencies.

World Bank Social and Environmental Safeguards

1. Environmental Assessment
2. Natural Habitats
3. Forests
4. Pest Management
5. Physical Cultural Resources
6. Access to Information Policy Subject to Independent Inspection Panel
7. Involuntary Resettlement
8. Indigenous Peoples Safety of Dams
9. Projects involving International Waters
10. Projects in Disputed Areas

<http://web.worldbank.org/>



APPLICABLE STANDARD

SUMMARY

IFC sustainability Framework

The IFC Sustainability Framework sets out the IFC's strategic commitment to sustainable development as an integral part of the approach to risk management. The Sustainability Framework consists of Environmental and Social Sustainability Policy, the Performance Standards that define responsibilities for managing environmental and social risks and the Access to Information Policy, which articulates the IFC's commitment to transparency. Policy on Environmental and Social Sustainability

1. Assessment and Management of Environmental and Social Risks and Impacts.
2. Labor and Working Conditions.
3. Resource Efficiency and Pollution Prevention Performance Standard.
4. Community Health, Safety, and Security Performance Standard.
5. Land Acquisition and Involuntary Resettlement Performance Standard.
6. Biodiversity Conservation and Sustainable Management of Living Natural Resources Performance Standard.
7. Indigenous Peoples.
8. Cultural Heritage.

https://www.ifc.org/wps/wcm/connect/b9dadb004a73e7a8a273fff998895a12/IFC_Sustainability_+Framework.pdf?MOD=AJPERES

ICMM 10 Sustainable Development Principles

The Sustainable Development Framework includes integrating a set of ten principles and six supporting position statements into corporate policy, as well as setting up transparent and accountable reporting practices:

1. Implement and maintain ethical business practices and sound systems of corporate governance.
2. Integrate sustainable development considerations within the corporate decision-making process.
3. Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities.
4. Implement risk management strategies based on valid data and sound science.
5. Seek continual improvement of our health and safety performance.
6. Seek continual improvement of our environmental performance.
7. Contribute to the conservation of biodiversity and integrated approaches to land-use planning.
8. Facilitate and encourage responsible product design, and the use, reuse, recycling, and disposal of our products.
9. Contribute to the social, economic, and institutional development of the communities in which we operate.
10. Implement effective and transparent engagement, communication, and independently verified reporting arrangements with our stakeholders.

https://www.ifc.org/wps/wcm/connect/b9dadb004a73e7a8a273fff998895a12/IFC_Sustainability_+Framework.pdf?MOD=AJPERES



APPLICABLE STANDARD

SUMMARY

United Nation

1. End poverty in all its forms everywhere.
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
3. Ensure healthy lives and promote well-being for all at all ages.
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Achieve gender equality and empower all women and girls.
6. Ensure availability and sustainable management of water and sanitation for all.
7. Ensure access to affordable, reliable, sustainable and modern energy for all.
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

10. Reduce inequality within and among countries.
11. Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to combat climate change and its impacts.
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

<http://blog.movingworlds.org/the-full-list-of-the-17-united-nationssustainable-development-goals-with-pictures-sdgs/>



Improved sustainability governance structure

MSR is aware that a successful integration and effective management of sustainability at a company requires having committed leadership, clear direction, and strategic influence—a robust governance structure. From time to time, we attempted to consolidate our Sustainability Governance Structure.

In 2018, CHES (Community, Health, Environment, Safety and Sustainability) has been established as Cross-Functional Executive Sustainability Committee, which is below the Sustainability Committee, CHES is entitled to engage across departments and divisions in the Company and its subsidiaries in order to implement the sustainability initiatives as well as to provide further oversight and strategic

guidance. It also mobilizes employees to implement strategies and conduct regular meetings (monthly and quarterly) to review the performance. The functions involved can vary, but may include risk management, operations and facilities, communities and communications, human resources, environmental health and safety etc.



Our Sustainability Governance in 2015



Our Sustainability Governance in 2018



Cross-Functional Executive Sustainability Committee (CHES)

CHES (Community, Health, Environment, Safety and Sustainability)

CHES committee was formed with representatives from all departments and contractors. The inauguration of the CHES Committee was held in August 2018. The Committee's functions, missions and charter as well as the appointment of the Chairman and Secretary were presented and approved at the ceremony.

In 2018, The CHES Committee has undertakings of consulting and coordinating with employees, contractors and management and implement measures which are designed to ensure and enhance:

- (1) Safety and health for employees
- (2) Environmental protection and
- (3) Foster transparent relations with surrounding communities in the operational areas of the Company.



Annually reviewed risk management



Risk	Basis of Risk	Risk Mitigations
Commodity Price Risk	The prices we obtain for our tungsten, copper, fluorspar and bismuth are determined by, or linked to, prices in world's markets, which have historically been subject to substantial volatility. Fluctuations in commodity prices can occur due to price shifts reflecting underlying global economic and geopolitical factors, industry demand (i.e. Energy, Defense, Infrastructure), increased supply due to the development of new productive resources, technological change, product substitution and national tariffs. The volatility in global economic growth has the potential to adversely impact future demand and prices of commodities. This can negatively impact future cash flows and asset values.	The Company operates at the lower end of the global cost curve for its products, which places it in a preferred position in low price environments. The Company has a diversified portfolio of products, which are sold to a diverse customer base across multiple geographic markets and different end-use applications. This insulates the Company from large swings or exposures to any commodity in isolation and also protects the Company from a poor performance in a single customer geography or end-use application. For commodities that are exchange traded, such as copper, the Company can use financial instruments, such as forward contracts and hedges, to reduce its exposure to pricing risk.
Currency Exchange Risk	Majority of the Company's sales are exported and priced in US dollars. Fluctuations in the VND/USD exchange rate can therefore have a significant impact on the Company's financial result.	Various expenditures for materials and spares which are not available in Vietnam are imported and paid for in USD which results in a natural offset for a portion of the Company's costs. The remaining expenditures of the Company and the Company's debt are measured in VND. This exposes the Company to exchange rate variations between VND and USD. Currency risk is regularly monitored by the Chief Financial Officer and appropriate recommendations are made to the Board, so that the adequate risk mitigating actions are undertaken in a timely manner.
Unexpected or sudden unfavorable changes in the regulatory and political environment in Vietnam or in customer countries, possibly effecting our operations, sales, or business decision making.	Regulatory changes in Vietnam or customer countries have the potential to increase costs, lower margins or restrict the Company from selling its products in customer countries.	The Company regularly monitors the regulatory environment within Vietnam as well as in customer countries to assess their likely impact on product sales. This is done in order to ensure the Company and its customers can be proactive in appropriate proactive engagement in customer countries or within Vietnam so as to guarantee the long-term viability of the business.
Failure to maintain reserves or develop new operations could negatively affect our future results and financial conditions.	The demand for our products results in the depletion of our existing reserves over time. As our revenues and profits are derived from our mineral operations, our future results and financial conditions are directly related to our future exploration and acquisition efforts and our ability to generate reserves to meet our future production requirements at a competitive cost.	The Company has already identified reserves which underpin a long-term mine life. The reserves have been prepared and determined in accordance with international standards and reviewed by independent third parties. This gives the Company a strategic ability for future exploration undertakings and examinations of acquisition opportunities. Existing reserves will be further drilled, as required, in order to extend mine life in places where geological modeling and market conditions support such works.
Commercial Counterparty Risk	The Company has contracts with a large number of commercial and financial counterparties, including end-customers, suppliers and financial institutions. Global economic volatility continues to strain global financial markets, resulting in generally uncertain business conditions. In addition, customers, suppliers and contractors and joint venture partners may fail to perform in accordance with existing contracts and obligations.	The Company has counterparty credit controls which limit the exposure to any single customer, geographic region, end-use application or Commercial and Trading counterparty. The Company periodically reviews the financial and market performance of its respective counterparties to proactively manage risks and/or potential issues.

Key Person Risk	Loss of key management positions may result in a disruption of on-going operations and/or loss of shareholder confidence, leading to a fall of share prices.	Human Resources Management is an important platform for the success of the Company. To control this risk, the Company has implemented succession planning and comprehensive training and development programs to ensure that capable people are available internally. The Company periodically offers attractive employee share ownership programs to ensure employee alignment with shareholders and employee retention.
Competition Risk	Ability to defend, maintain and/or increase Masan Resources strategic objectives and market share.	The Company operates the world's largest tungsten mine. It is a key strategic source of non-China sourced tungsten chemicals and other products. The Company has entered long-term sales agreements with a number of top global companies thus insulating itself from a potential loss of market share through the possible introduction of future suppliers.
Unexpected natural and operational catastrophes may adversely impact our operations.	Unexpected natural and operational catastrophes may adversely impact our mining operations, route to market or customers' facilities. At the Company's main operational facility, the key natural catastrophes include flooding and earthquakes. They can impact the open cut mine, tailings dam facilities or the processing plant. Potential operational catastrophes include operational accidents, processing plant fires and explosions, open-cut pit wall failures, loss of power supply or critical mechanical equipment failures.	Business continuity and contingency plans are in place to mitigate the consequences of operational catastrophes. Potential unexpected natural catastrophes have been identified and contingency plans are in place to mitigate the consequences. The Company's facilities, including its tailings dam facilities, have been constructed to international best standards. They were constructed to World Bank Standards and are subject of regular inspections by an independent international review panel. As part of the risk management process, the Company has comprehensive insurances in place to mitigate any losses incurred due to business interruption as a result of unexpected natural and operational catastrophes.
Breaches of information technology security processes which may adversely impact our business activities	The Company maintains information technology (IT) systems, consisting of infrastructure, business applications and communications to support our business activities. These systems may be subject to security breaches (e.g. cybercrimes) that can result in disruption of our operations, loss of intellectual property or disclosure of commercially sensitive information and reputational damage.	The Company regularly reviews its IT security systems, processes and protocols. The Company maintains perimeter firewalls and offsite backups of key data, systems and processes. In FY18 an improved endpoint security solution has been implemented, and in FY19 Q1 a security strengthening activity is underway. Concurrently, in FY19 Q1 an IT risk assessment will be performed at both a technical level (Security strengthening engagement) and business risk and governance (IT Strategy engagement) which will deliver a security improvements roadmap to be actioned in FY19.
Sustainability Risk	Health, Safety, Environmental or Community incidents or accidents may adversely affect our people or neighboring communities, operations, reputation and license to operate.	The Company's approach to the sustainability risk is reflected in its CHES (Community, Health, Safety, Sustainability) Policies. Further to the adopted preventative approach, all significant CHES incidents or accidents are recorded and reported to the Board of Directors. On the occurrence of a significant incident, the Company works directly with relevant governing bodies and impacted parties to resolve and ensure that the risk of recurrence is minimal.
Global Economic volatility	Global economic outlook is more geo-political in nature. The global political climate remains uncertain which will cause some degree of volatility, positive or negative, that may test fundamentals which thus far have proven to be more than resilient.	We maintain a positive outlook for the US economy and though the growth might moderate in 2019 vis-à-vis 2018, the underlying growth drivers remain in place, and the more than 300,000 job creation in December 2018 is testimonial to it. Consumer spending is booming with high levels of confidence and a further fall off in unemployment ensuing real wage gains would be supportive of its short-term sustainability. For China, we see enough tools in monetary and fiscal space to counter the impact of unfavorable trade policies, stimulate growth and keep it up above the critical level of 6%. Vietnam & India continue to outshine and after growing at an attractive rate of more than 7% in 2018, are expected to sustain the growth momentum and retain the title of world's fastest growing economies in 2019. While our outlook for Eurozone is less optimistic, with the economic foundations having the correct architecture, we believe that sufficient caution is in place to manage global economic volatility.



Most material topics in 2018

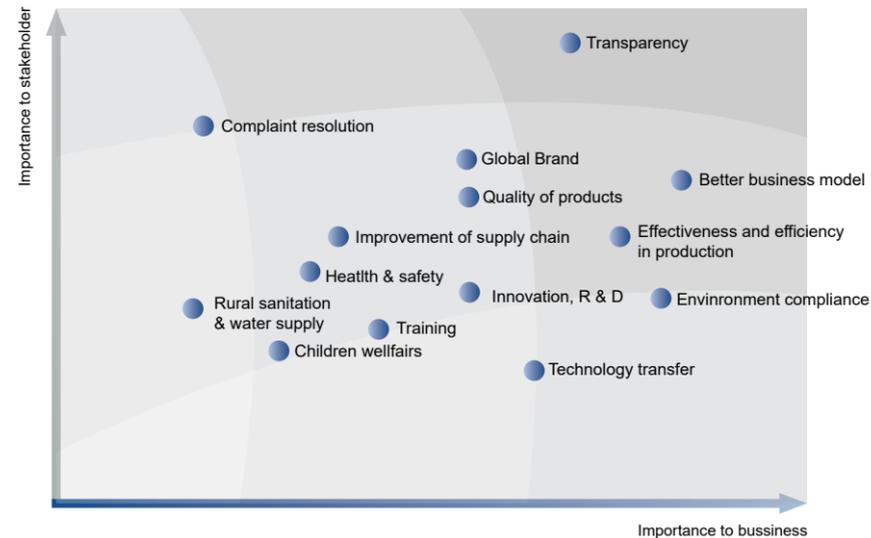
Material topics help us identify and prioritize the sustainability issues that matter most to our business and our stakeholders. Notably, our material topics are defined by not only taking into account the consultations with our stakeholders and their expectations and concerns, but also the characteristics of global, national and local context, where key sustainable initiatives are clearly defined and guided. Accordingly, it is important to understand how the company's strategic development is aligned with the requirements of the broader context of sustainability such as the SDGs, the Green Growth or with the approaches to the Circular Economy.

In 2018, 14 material topics were brought up by our stakeholders, and ranged from our business development strategy, our production effectiveness, efficiency and safety, our integration of business models accompanied by further investments in human resources development, to name a few, to our legal compliance, accountability and transparency as well as our contributions and influence to socio - economic development, both locally and nationally.

In particular, the content of our Sustainability Report of 2018 reflects our performance on the following material aspects:

- Consolidated sustainability governance
- Business development and investment in research and development (R&D)
- Our transparency in mining and processing
- Our further investment in Human Resources
- Our efforts in the adoption and embracement of innovation and technology for adequate environmental impact mitigation and finally, our in-kind contributions to sustainable agriculture, rural sanitation and children's welfare.

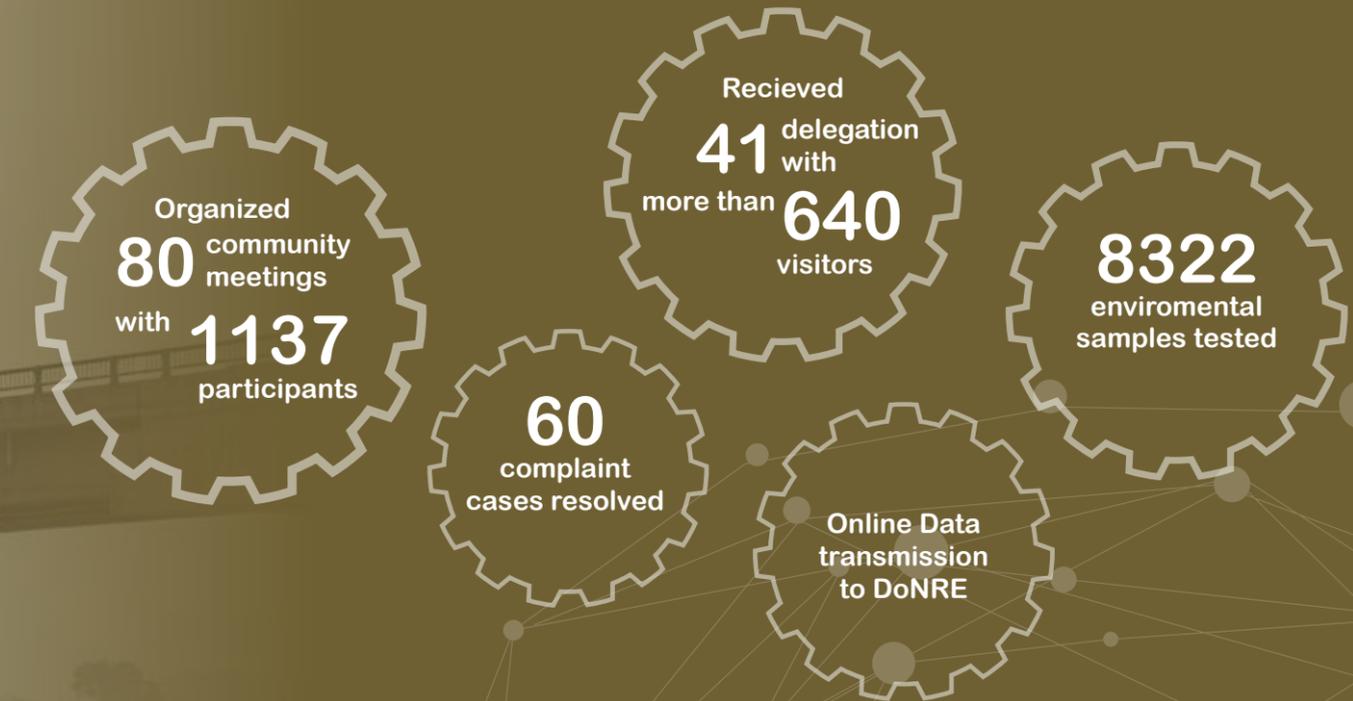
(see Page 57)





Making
transparency **key**
approach
to oversight
sustainability

Realizing a real participation through on-going PCDP
Environment transparency: Beyond compliance



The benefits of transparent information flow have been recognised by MSR since the commencement of the Nui Phao operations. The major aspects of transparency in our operations pertain to the resettlement & compensation activities, the environmental impacts and mitigations, the production and business operations. In addition, it needs to be stated mining and its contributions to society, the ecosystem and sustainability in the neighbouring communities, such as the benefit sharing, health and safety priorities, environmental protection & caring, economic rehabilitation and community developments over the long term, are often not well understood. Sometimes this has led to mis-conceptions and distrust among various stakeholders, especially the community people, local authorities and other, relevant, social institutions. Simply put, without openness and transparency, an enhanced decision-making process is severely impeded.

As a result, 2018 witnessed an extraordinary amount of information disclosed, in the form of site visits, community meetings, workshops, consultations as well as open dialogues between the company and internal and external stakeholders. Moreover, our transparency procedures dictate a focus on reliable & convincing input data, formal reporting, and being responsive to any concerns of our stakeholders. We found the latter to be of high importance for trust – based relationships with our stakeholders.

Realizing a real participation through on-going PCDP

As stated in our annual Sustainability reports, the Public Consultation and Disclosure Plan (PCDP) has been designed to develop, maintain and improve the two way communication between the Companies and stakeholders., among which the indigenous communities was the key. This communication mechanism has now been implemented for a number of years. It is constantly monitored and, if and when required, adjusted and improved accordingly.

MAKING INFORMATION ACCESSIBLE FOR ALL COMMUNITY PEOPLE

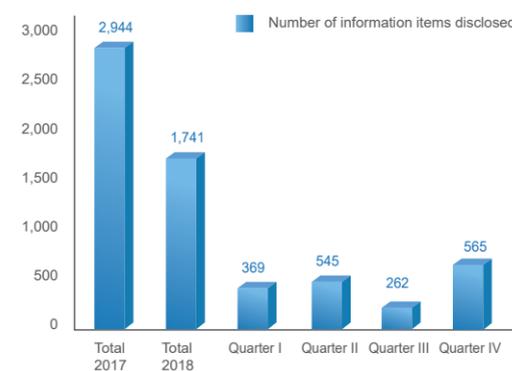
MSR, offers priority policies to PAPs and neighboring communities people in terms of recruitment, casual work and goods and service supply. Local people often come to our information centre not only to seek guidance on how best to avail of these opportunities, but also to receive updates on our Compensation and Resettlement (C&R) policies. Besides, the information about Company's activities, commitments and impacts can also be found at our information centre.

In 2018, more than 1,700 of company information items were disclosed and there were more than 350 visits to our information centre, located at the project site.

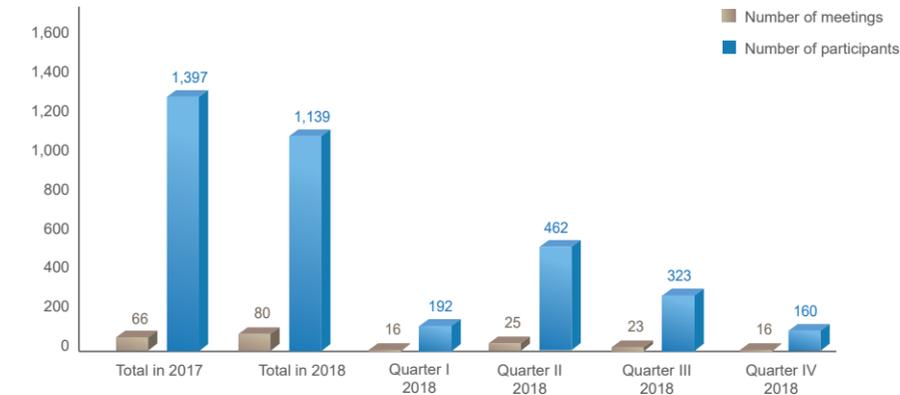
Information disclosure by year (2011-2018)



Information disclosure 2018 (by quarter)



Number of meetings/ community consultations with commune people in 2018



In 2018, the number of meetings/community consultations organized by the Community Liaison team and the External Relations Department increased by about 12% compared to 2017. Additional meetings on compensation and resettlement policies were organized at hamlet /commune and district levels. Furthermore, in 2018, the Community Liaison team organized a range of community consultations on the needs for economic development, stabilization of life, rural sanitation and infrastructure, health care for people affected directly and indirectly by the project.

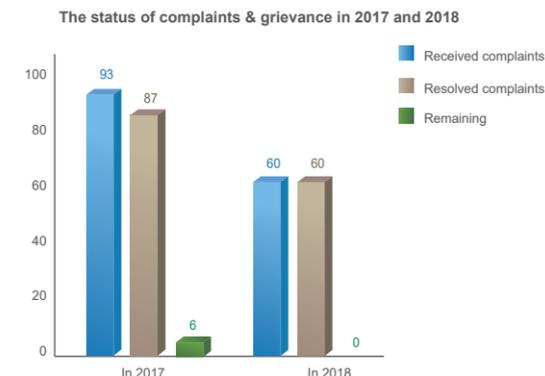


UNLOCKING COMMUNITY CONCERNS THROUGH THE COMPLAINT MECHANISM

In order to develop and maintain a successful engagement with local people, it is not only about technical solutions of production and technology but it should be about relationships, reconciliation and the balance of interests. Masan Resources adopted its complaints and grievances mechanism in the early stages of its operations, and the mechanism has been prioritized for continuous development and improvement over the recent years. By maintaining this mechanism, the Company demonstrates its ongoing efforts to address the community concerns about the company policies, its activities as well as to provide the necessary compensation and mitigation measures for any adverse impacts caused by our operations.

The number of complaints and grievances in 2018 continued to decrease compared to 2017. This was a direct result of the company's efforts towards the mitigation of the environmental impacts and communication transparency. Besides, the formal grievance handling procedure is reviewed every year by the PCDP team to ensure that all complaints and grievances from communities are properly reported, recorded, responded to and resolved, as quickly and efficiently as possible. Also, by keeping a record of the grievances received from the community, the teams can share the learnt lessons to avoid similar incidents occurring in the future.

In addition, in order to reduce the number of formal complaints from surrounding communes, the community liaison team actively coordinated inspections to the community areas adjacent to the project frequently, approached communities and organized participatory consultations to timely resolve community's informal concerns and questions. However, there were two complaint cases which needed the involvement of a third party in the complaint resolution process, since the complainants and the company were not able to reach a common agreement. In this case, the local authority (Dai Tu DPC) and the functional department (Department of Nature Resources and Environment) worked together with the company and the complainants to resolve the matter.



OFFERING STAKEHOLDERS TO OVERSIGHT OUR BUSINESSES

In order to increase the level of transparency, in 2018 Nui Phao began providing organized site visits for local people, authorities and other stakeholders, which allowed them not only to witness the company's operations, its investments in production technologies and environment protection, but also provided them with a chance to share their ideas and concerns about company's operations with company's representatives.

In 2018, the company received 41 delegation to its Nui Phao site with more than 640 visitors from the local communities, authorities at different levels, specialists/experts from academic research institutes and universities, investors and other stakeholders from Viet Nam and other countries.



During their visits to Nui Phao site, they were given a tour of the mine site, visited different technical facilities from the open pit, processing plant, waste water treatment plant, the online waste water treatment monitoring system, to the tailing dam. During the tour, the company's representatives introduced them to each facility in detail. They also had



Dr. Nguyen Thi Thuc Anh – Lecturer from the Environment Faculty of Ha Noi Natural Resources and Environment University said at her visit to Nui Phao site on the 20th November 2018: *“Although I have been to many large mines in the world like Canada, US and Australia, I was most impressed at Nui Phao mine. I have been here a few times before and witnessed the growth of the Company, and I think you are a pride for Vietnam. You have been doing so well, so professional and efficient.”*



“To visit and work with Nui Phao has been an honour to our group. I wasn't just speaking for myself but for many other international participants who felt the same while in Nui Phao and after coming back to Hanoi” said Vice Prof. Dr. Nguyen Thi Hoai Nga – Deputy Head of the Mining Corporate Governance Subject under the Faculty of Economic and Business Administration of the Mineral and Geology University at her visit to Nui Phao mine on the 20th November 2018.



Mr. Dieu Ngoc Giap - Party Secretary of Hamlet 13, Ha Thuong commune said at his visit to Nui Phao sit on the 26th July 2018: *“We are very pleased to have witnessed with our own eyes those modern and well-structured facilities for mining production and environmental protection of Project. I am particularly impressed with Nui Phao's blasting operation, where blasting shot was strategically arranged by using advanced technique to minimise vibration and dust during blasts ect.”*



Jorn Kasbonhm (Lecturer from Greifswald College) said at his site visit to NPM with students of Thai Nguyen Agriculture and Forestry University on the 7th November 2018: *“Having been to many countries and mine sites around the world, I was in awe with Nui Phao mine for its modern and professional operation, from mining to processing and its activities of environment protection. The tailings dams are professionally designed and built, with different types of tailings classified and stored in separated cells, while almost water from the cells is recycled for use in the processing plant. The wastewater treatment plant is equally modern, and I am also impressed with the Automated wastewater monitoring Stations as data are transferred directly to the provincial Department of Natural Resources and Environment, which helps to ensure transparency in managing the Company's wastewater data.”*

Environment transparency: Beyond compliance

Compliance with the regulations guided by the Law on Environment Protection is a compulsory stipulation for the enterprises in Viet Nam in general and MSR in particular. During the operation of the Nui Phao mine, NPMC has fully complied with both Vietnamese laws on environment protection but also acted in accordance with the recognized international standards and conventions.

The compliance with the laws of environment protection has an equal priority as all other MSR activities, including mining, plant operation and the development of future mining operations.

SAMPLING/ TESTING

In 2018, a total of 8,322 environmental samples have been taken (including internal samples and external samples taken by independent labs), out of which: 7,194 were water samples, 12 were soil and tailings samples, 89 solid waste samples, 120 ambient air and emission samples. The daily results of waste-water monitoring is automatically sent by email to the relevant personnel of appropriate departments in order to enhance the quality of water control.

Besides, in 2018, MSR conducted a total of 251 days of environmental samplings taken and involved the representatives from Thai Nguyen DoNRE and/or Dai Tu DPC and/or Ha Thuong CPCP who participated in the sampling programs for the initial period of 21 days.

REPORTING / DISCLOSING

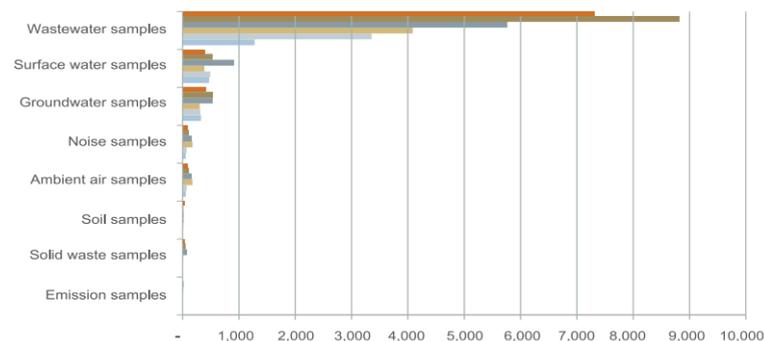
In order to provide information in a timely manner on the implementation plan in accordance with the recommendations from MoNRE, from July 2017 to date, MSR has distributed 15 reports of updated corrective action plans to MoNRE, Thai Nguyen PPC, Thai Nguyen DoNRE and Dai Tu DPC.

In 2018, MSR submitted a total of 18 reports including 12 waste-water discharge reports, 2 annual environmental reports, 1 annual hazardous waste report and other reports at the request of the regulator.

Since September 2018, the monitoring data from automatic waste-water monitoring stations at DP2 & DP3 have been transmitted online to DoNRE to ensure the transparency and objective data monitoring.



Total environment quality monitoring samples



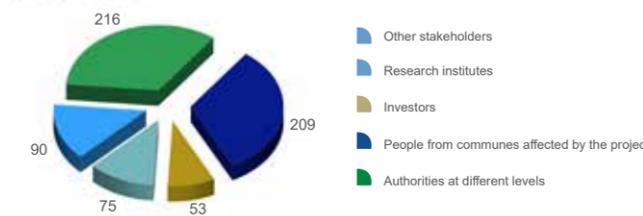
VISITING/ OBSERVING

In 2018, MSR organized and received 41 groups of visitors (640 people) who are state agencies, local authorities, international organizations and people from the local community. The purpose of the visits was, primarily, to inspect environment protection works in order to ensure transparency and objectivity.

In 2018, a total of 20 newspaper outlets and television channels published several articles and reports on the environmental protection activities of MSR with the aim of providing readers an objective overview of the efforts of MSR in this aspect of its operations.

That was resulted from expanding the communications in 2018 by providing site visits to Nui Phao site for local people, authorities and other stakeholders which brought them not only more options of getting information from the company but also chances to witness the company's operations, investment in production technology and environment protection, especially brought them chances to share ideas, concerns about company's operations with company's representatives and got responses immediately.

Visitors to Nui Phao site categorized by different groups in 2018



RESPONDING

In 2018, MSR continued to implement the environmental recommendations according to MoNRE's conclusions. Here, most of the environmental recommendations have been completed, while the remaining ones are expected to be completed in a near future. To date, a total of 4 million US\$ has been invested in the implementation of environmental recommendations.

2018

Legal

- New Cong River water extraction license
- New hazardous waste logbook (amended)
- Completed the study of TSF seepage assessment – stage 1
- Completed the additional environmental rehabilitation plan
- Submitted the certified dossier of TSF (2013 -2018)

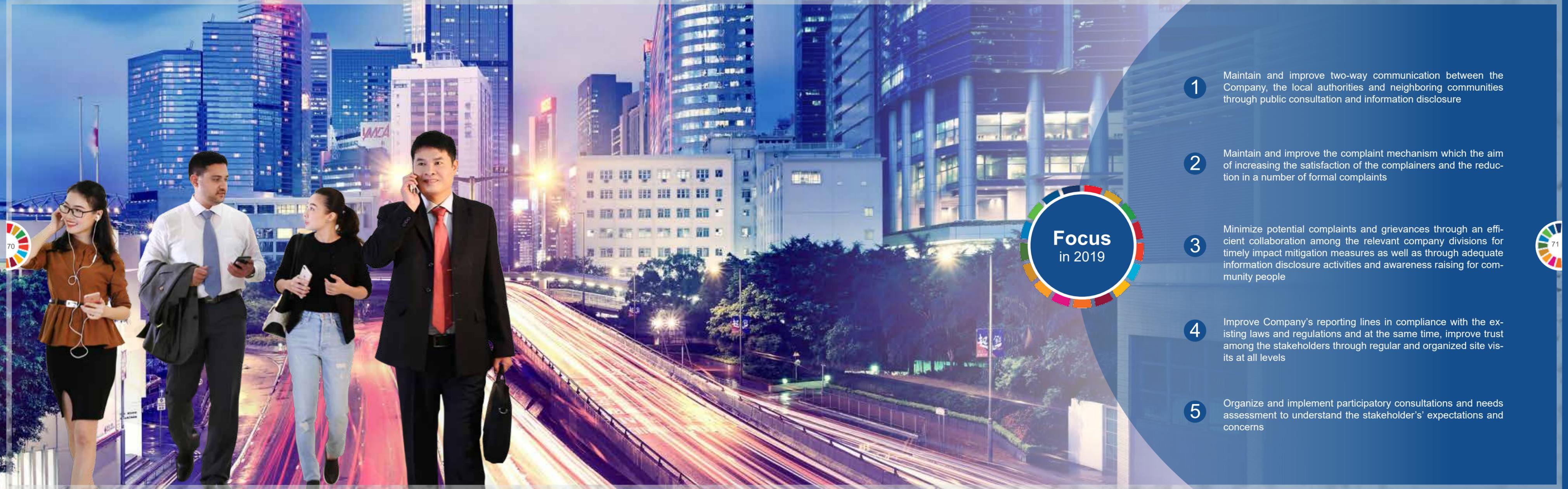
Protection Works

- Completed the upgrade of WWTP
- Completed the lining of PSRP, ROM-SP1; ROM-SP3
- Completed the installation of 4 automatic waste-water monitoring stations
- Completed the installation of 1 automatic gas monitoring station
- Completed Hamlet 6 cut-off drainage trench.

ANNUALLY REVIEWED MAPPING STAKEHOLDERS' EXPECTATIONS

Stakeholders	Expectations of stakeholders	Our actions	Outcomes 2018
 <p>Government</p> <p>Reporting; media (newspapers & TV articles); workshops and road shows, newsletters; presentations, seminars and meetings; formal and informal correspondences</p>	<ul style="list-style-type: none"> Compliance with regulations; Socio-economic development; Good governance. 	<ul style="list-style-type: none"> Investing in technology and environment protection; identification of the areas for improvement; Periodic meetings with authorities, both local and national; Co-operation with MONRE for inspections; Tax contribution, recruitment of thousands of local people; income generation through economic restoration and community support programs; establishment of local outsource suppliers; Compliance and transparency in information disclosure through various information channels 	<ul style="list-style-type: none"> MTC committed to invest 1 % of its revenues on R & D Completing the installation for the four (04) waste water online monitoring stations and one (01) gas online monitoring station Completing the construction of the Cut-off trench at the boundary of OTC and community area; Contributed more than 1000 billions VND to state budget; More than 2,000 job created for company's employees and contractors; Organised 41 groups of different stakeholders 640 visitors to NP mine; Diamond Sponsorship of Thai Nguyen Business Promotion Day 2018.
 <p>Investors/ Shareholders</p> <p>Meetings (annual and one-to-one); Reports and presentations; Monthly factsheets, publications; Media (newspapers & TV articles); events Project/site visits</p>	<ul style="list-style-type: none"> Business performance and generation of returns for shareholders; Risk management; Effective governance; Brand development and creation of new opportunities. 	<ul style="list-style-type: none"> Maintenance of low cost, innovation promotion and increased production such as productivity enhancement; improving the degree of product recovery or decreasing fuel use etc. Disclosure of risks, impacts and management systems; High level of compliance, application of international standards in displacement, production, safety and environmental monitoring; International management team; high expertise and investment in human resources development and experienced mining crews; Annual General Meeting (AGM) with the attendance of 200 shareholders; Promotion and implementation of CSR and sustainable initiatives. 	<ul style="list-style-type: none"> Net revenue up by 27%; Attributable net profit increased by 222%; Successful acquisition of HC Starck JV as it is a critical first step to deliver our vision of becoming a fully integrated downstream tungsten chemicals business of global scale and influence. Tens of visits to Nui Phao site for brokers with positive reviews of the company recommending purchase of equities in the company; Promoted the global brand by attending various national and international business and sustainable forums (ITIA, APEC etc.) Remained the position of the lowest cost mining operation and high profit margin above the average for the mining industry.
 <p>Communities</p> <p>Two way communication and open dialogues (meetings, discussions, information disclosure); Media (newspapers & TV articles); Government and authority inspections and supervision visits; Hotline function.</p>	<ul style="list-style-type: none"> Compliance with government policies, transparency and responsiveness; Job creation, household income; Physical and social infrastructure; Health – care, clear water and sanitation; Poverty reduction and hunger eradication; Environmental impact mitigation and compensation. 	<ul style="list-style-type: none"> Implementation of the Public Consultation and Disclosure Plan(PCDP) under the IFC guidelines; Implementation of the Economic Restoration Programs (ERPs) of the Resettlement Action Plan (RAP) prepared under the WB Social Safeguards Policies; Implementation of the Community Development Programs (CDP) under the references of the international guidelines (WB, UNDP, ICMM etc.); Implementation of the Complaint Mechanism, taking into account the voice of the community people in order to understand and timely unlock their concerns about the impacts associated with mine operations; Increased generation of the CSR and benefit sharing initiatives. 	<ul style="list-style-type: none"> More than 1,700 of company information items were disclosed and there were more than 350 visits to our information centre, located at the project site; More than 6,000 people affected by the project benefitted by the economic restoration & community development programs; 80 meetings / community consultations with up to 1,137 participants; The extended VietGap tea area for households in project area contributed to the 10% total area of VietGap tea in Thai Nguyen province and 21% of that in Dai Tu district; 15 training courses for 633 community participants; Clean water supply for 97 households in community nearby; Health care services for 185 people of vulnerable groups;

Stakeholders	Expectations of stakeholders	Our actions	Outcomes
 <p>Partners (local enterprises, NGOs, Women's Union, Red Cross etc.)</p> <p>Meetings; presentations; information disclosure system; attendance of sustainable forum; media releases and other publications.</p>	<ul style="list-style-type: none"> Sharing of resources (including but not limited to financial resources and expertise) – Capacity building for the competitiveness and comparative advantage of local enterprises; Shared value creation through community and regional development programmes – local infrastructure development, community health Environmental management and compliance 	<ul style="list-style-type: none"> Partnership models with the Policy Bank for micro finance, the CPEP for energy tree plantation; East Meet West for the sanitation project, Red Cross for blood donation for neighbouring communities; Facility support, training and subsidized schemes of local products; Participating in national and international sustainable forums. 	<ul style="list-style-type: none"> Continued collaboration with the Dai Tu Bank of Social Policies for microfinance program. Currently, 256 households are utilizing the fund for a great variety of income generation activities. To date, the total accumulated funds amounts to 9,358,000,000 VND. Continued collaboration programs between MSR and UFU who have coordinated the biodiversity research on the energy crop pilot scheme in order to evaluate the improvement levels of biodiversity; A blood donation campaign was organized in December 2018 and resulted in 149 blood donors under the call of the Dai Tu Red Cross
 <p>Employees</p> <p>Meetings; presentations; quarterly reports; complaints and grievance mechanism; newsletters; training programmes; relations with the trade union, employee surveys.</p>	<ul style="list-style-type: none"> Occupational health and safety; Training and education for development; Wages and working conditions; Remuneration and rewards; Employee motivation; Job security and opportunities and support for career development; Career transition in the event of termination. 	<ul style="list-style-type: none"> Adequate functional scheme through development of Competency dictionary for all positions in the Company; Strategic investment in capacity building; Advanced initiatives of employees' benefit packages such as health care, safety and security etc.; Performance-based salary, attractive bonus scheme such as (Monthly Star); Awards, Chairman's Award – As You Deserve) as well as internal performance improvement scheme. 	<ul style="list-style-type: none"> Highest average income in mining industry sector (11,400,000 VND/month); Employee Happiness survey much higher than market average; 93,880 training man-hours; Kaizen training for 108 representatives as "train the trainers"; Medical training for more than a thousand of employees and contractors; The "Amazing Race 2018" contest was held to celebrate the Company's day – 18th June. The disciplines included in the contest were marathon, bike-racing, boat-racing and titter bearer race with participation of hundreds of the Company employees;
 <p>Customers</p> <p>Meetings; presentations; site visits; questionnaires; publications; events.</p>	<ul style="list-style-type: none"> Maintenance of low prices for products; Product safety; Quality of products; Responsible sourcing. 	<ul style="list-style-type: none"> Localisation of resources; Product quality control through quality management system; Customer oriented management; Customer satisfaction survey. 	<ul style="list-style-type: none"> Customer Audits completed – with positive outcomes Accreditation – RSI, ITSCI, Tungsten chemical products such as APT, YTO, BTO are recognized by the Ministry of Industry and Trade as an industrial product with a purity of over 99%.
 <p>Suppliers/ Contractors</p> <p>Meetings; presentations; site visits; questionnaires; publications;</p>	<ul style="list-style-type: none"> Sustainability in economic performance – supply opportunities, payment process; Fairness in suppliers' contractual conditions, specifically the code for responsible sourcing and supply chain management; Contractor selection - health and safety, management procedures. 	<ul style="list-style-type: none"> Induction and training for contractors; Commitment to localisation of resources; Fair and open supplier assessment; Health and safety requirement and assessment (compliance, risk assessment); Management system to ensure fairness to prevent conflict of interest and fraud. Fair and open supplier evaluation through Supply. 	<ul style="list-style-type: none"> Supplier capacity building – improving safety performance and systems within contractors Local uniform vendor looking at various ways to increase their capacity outside of just doing business with MSR Increasing Business Activities for local supplier (Anh Duong bag manufacturer)



Focus
in 2019



- 1 Maintain and improve two-way communication between the Company, the local authorities and neighboring communities through public consultation and information disclosure
- 2 Maintain and improve the complaint mechanism which the aim of increasing the satisfaction of the complainers and the reduction in a number of formal complaints
- 3 Minimize potential complaints and grievances through an efficient collaboration among the relevant company divisions for timely impact mitigation measures as well as through adequate information disclosure activities and awareness raising for community people
- 4 Improve Company's reporting lines in compliance with the existing laws and regulations and at the same time, improve trust among the stakeholders through regular and organized site visits at all levels
- 5 Organize and implement participatory consultations and needs assessment to understand the stakeholder's expectations and concerns

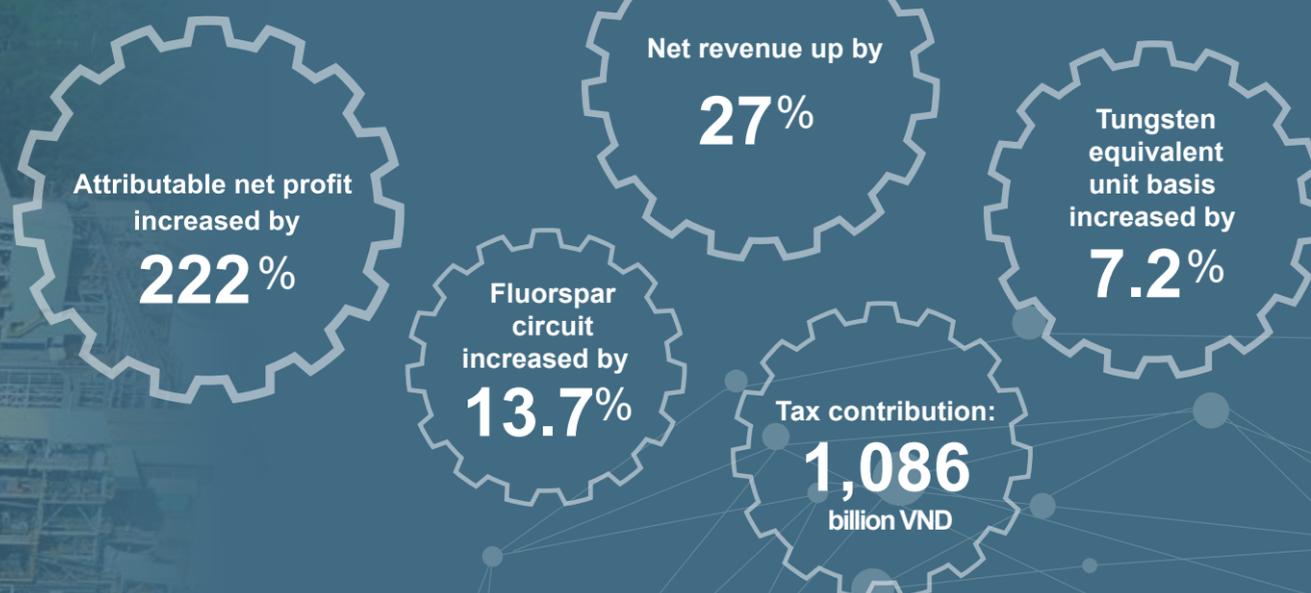


Keep going

Our business development



A realistic model of further downstream integration
 Moving beyond the borders as a global player
 Solid base deliverables in production and SCM



In order to become sustainable, the mining and processing industry must find ways to ensure its long-term economic benefits. For MSR, our strategy is made possible with a stable and long-term business model, remarked by our successful acquisition of HC Starck JV, global market consolidation and ongoing effectiveness & efficiency of our production management.

Our role as a raw commodity producer, continues to let us avail of the benefits a secured, long-term and low-cost supply chain solution, giving us a competitive advantage over other industrial product platforms. We continue to identify further value accretive upstream and downstream opportunities to enable our business development at a global of scale.

We have achieved a record revenue of VND 6,865 billion over the last year, which is an increase of about 27% compared to 2017. Accordingly, the Company delivered a record attributable net profit of VND 664 billion in 2018, representing a 222% increase over the same period last year on a profit margin of 9.7%. This was made possible by relying on a realistic model of further downstream integration, promoting our brand and production reputation beyond the national borders and accelerating our R & D activities in 2018.

Besides, for MSR, our sustainable achievements include not only financial factors such as revenue, production and payments, but also our contribution to the government and to the sustainable growth of the neighboring communities. We understand that any business activity of any enterprise creates certain impacts on all aspects of social life and environment where businesses operate.

A realistic model of further downstream integration

The Company's evolution from a pure mining business to an innovative technological organization took place in 2018. The HC Starck JV acquisition in 2018 helped to consolidate our downstream processing capability and benefits of this acquisition will continue to be realized in the future.

"In regards to the benefits of the acquisition- we acquired 49% - therefore 100 % ownership of the key strategic access. It gives us the ability to make decisions to invest in our business and grow our business independently. It also gives us a hundred percent access to the cash flow and the earnings of our business given the purchased part we pay...that is very critical for MSR and has already resulted in positive impacts on cash flow and our profitability. In regards to the quality of products, MTC is a combination of the equipment, knowledge and the operators that we trained over the 5- year period and there will be no deterioration in the quality of our products".
 Craig Bradshaw - CEO.



A SUCCESSFUL ACQUISITION OF HC-STARCK JV

In August 2018, Masan Resources Corporation (MSR) has announced that Nui Phao Mining Company Ltd. (NPM), a wholly owned subsidiary of the Company, has acquired H.C.Starck GmBH's ("HCS") 49% stake in Nui Phao – H.C.Starck Tungsten Chemicals Manufacturing LLC ("NHTCM") for a total cash compensation of USD 29.1 million. The transaction was fully funded by Masan Resource's funds. NHTCM is now a 100% wholly owned subsidiary of Masan Resources and has been re-named Masan Tungsten Chemicals (MTC).

This acquisition is a critical first step to deliver our vision of becoming a fully integrated downstream tungsten chemicals business of global scale and influence. It consolidates our ownership of advanced processing technologies.

Today, we are the #1 primary tungsten concentrate (TC) producer outside of - China with 36% of non-China market, and we have clear operational plans to become the largest producer and supplier of tungsten chemicals globally.



ADVANCED MANAGEMENT SOFTWARE

At MSR, we are applying advanced processing technology and all processed products are recognized by the Ministry of Industry and Trade as industrial products: tungsten, bismuth, fluorspar and other products. Especially, our MTC is the only enterprise in the mining industry in Vietnam that applies the world's advanced mining and processing management software to minimize resource losses and optimize value of mineral resources by operating the German technology-based tungsten chemical production line.

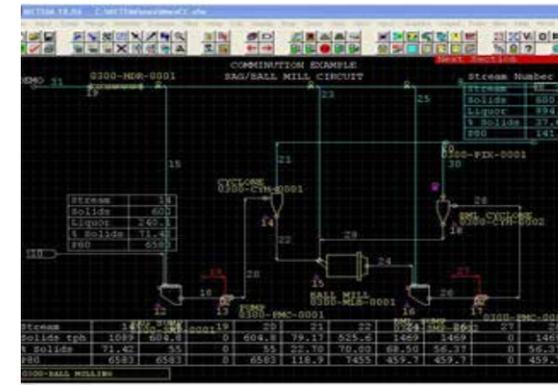
METSIM software

A highly advanced and specialised software package, METSIM simulates the production line of the factory, and issues changes in production parameters, improving plant capacity as well as performing optimizations. The specifications can be pre-processed on the software platform to find the optimal parameters before applying them to the actual production in the factory to minimize the time and costs incurred in the process.

COMMITTED R&D INVESTMENT

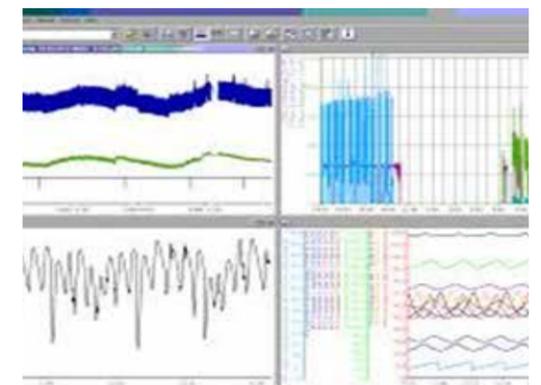
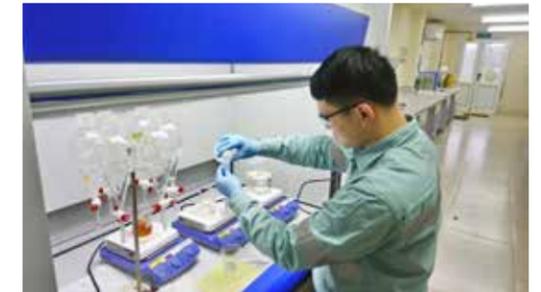
The application of modern technology and advanced production and processing lines Tungsten MASAN Processing Company ensures the minimisation of resource loss and optimisation of the value of natural resources, with a mineral recovery rate of over 96%. Tungsten chemical products such as APT, YTO, BTO are recognized by the Ministry of Industry and Trade as an industrial product with a purity of over 99%.

The mining and metals industry is considered relatively mature from the technological point of view, since it usually spends less than 1% of its revenues on R&D. In recognition of NHTCM's contribution to Vietnam's development



ACRON software

The ability of ACRON software to connect to the control center (DCS), to automatically store and monitor the fluctuation of all production parameters has greatly aided the management of production operation. This has significantly improved the efficiency of transmission lines and minimized damage caused by incidents in the production process.



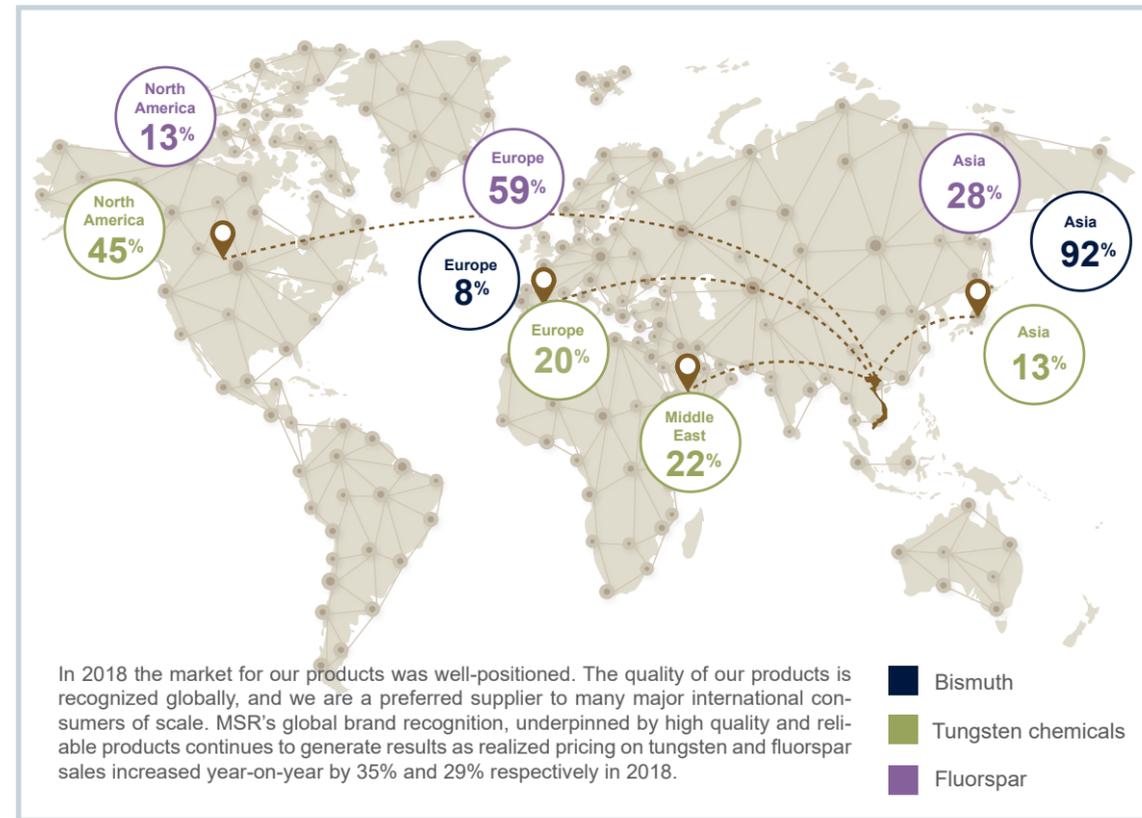


Moving beyond the borders as a global player

A GLOBAL SCALE

Nui Phao is the first mine in Vietnam to operate in accordance with international standards. That in itself is no small feat, however MSR has no intention of stopping there. We aim to position ourselves in a leadership position and to provide tungsten to the rest of the world.

The mining industry is cyclical and one of its biggest challenges is that supply may at some point meet the current demand, however, a more likely scenario is that will inevitably fall into a deficit. We are aware of this, however, given the fact that Vietnam accounts for approximately 40% of the world's supply of tungsten, we are confident that MSR will continue to play a key future role in this market.



REPRESENTING VIETNAMESE INDUSTRY

- >> By regularly participating at the world's largest forums of Mining and Resources, MSR represents one of the rare Vietnamese companies which are "coming of age" and which have begun to expand beyond the national borders and become global players. In particular, MSR participated in the 31st Annual General Meeting of ITIA at Chengdu, China and the common theme among the end use customers was a continued robust demand with strong, ongoing order books.
- >> In October, 2018, MSR was one of the few Vietnamese producers, who presented their activities at the International Mining and Resources Conference & Exhibition in Melbourne, Australia, which brought together over 3000 decision makers, mining leaders, policy makers, investors, commodity buyers, technical experts, innovators and educators from over 60 countries for four days of learning, deal-making and unparalleled networking.
- >> In 2018, MSR has presented itself as well as advanced Vietnamese industry at the 12th Annual APEC meeting, organized in Papua New Guinea. The speech delivered by the MSR representative and the presentation were warmly appreciated by over 2000 delegates, and it clearly demonstrated that what we have achieved here at Nui Phao is certainly world-class. Our presentation on Management of Waste Waters and the Tailings Dams at Nui Phao was also well received by delegates in Spain at the 2018 Wessex Institute Waste Management Conference.
- >> We embody the "Vietnam Can Do" spirit, and we are strongly positioned not only to significantly increase shareholder value, but more importantly to enhance social economic value as a global representative of Vietnam.



Solid base deliverables in production and SCM

2018 witnessed our continued growth of both revenue and profit to our shareholders owing to the solid deliverable results of the production management. For this purpose, in 2018, the Company purchased additional amounts of concentrates and tungsten raw materials from a third party in order to fully utilize the excess capacity of our MTC processing facility.

Our role of a raw commodity producer, continues to let us avail of the benefits a secured, long-term and low-cost supply chain solution, giving us a competitive advantage over other industrial product platforms.

PRODUCTION MORE WITH LESS

Our mine produces around 3.5 to 3.8 mn tonnes of ore per year, including tungsten, bismuth, fluorspar and small amounts of copper and gold. Given the nature of the minerals, the challenges in our mining operations differ from other mines in the way the minerals are processed both effectively and efficiently.

In 2018, Masan Resources reported a record year production across all of its commodities, with a 5.7% increase year-on-year with tungsten, copper and acid grade fluorspar production increasing by 13.3%, 8.5% and 7.6%, respectively.

In 2018, the Maintenance team was assigned to design and build two new liner handlers for our operations. The quotation received from a reputable international manufacturer per unit was approximately US\$350,000, which we believed was too expensive. Our Maintenance team, once given the challenge, stepped up and built two new liner handlers for about US\$129,000. This is a true demonstration of initiative, innovation, can-do attitude and timely delivery..



SEEKING FOR A LONG-TERM SAVING IN SCM

The supply chain department commenced the year of 2018 with a resolution not to repeat any past failures but to learn from them and continue to improve on the safety practices of personnel, consolidate current processes, maximize saving opportunities without impacting the business and look for opportunities to introduce efficient procedures through the entire supply and logistics chains. Notably, we are seeking long-term, sustainable savings opportunities that are not necessarily of financial value, but could include things such as time savings, improved manning level or job task requirements that would be otherwise hard to quantify but could still deliver a desired outcome.

For this purpose, the Supply Department was provided with a Marginal Improvement Plan savings target of \$1M in 2018. However, through the collective effort of each of the sub-department, the savings exceeded this target and a fully recorded saving of \$1.193M was achieved

Category	Achieved \$MN	REMARKS
Fluorspar Freight	\$566k	Dec'18
Logistics Other	\$52k	Dec'18 includes Bi-cement freight, WH and equipment rental
LV, Ambulance & motor bike sales	\$61k	
Import Tax Exemptions	\$88k	Jan'18 to Dec'18
Price negotiation	\$60k	[Iron powder/grinding rod]
Profit margin negotiation	\$17k	Explosives
Acid price reduction	\$192k	Price reduction
Bismuth Freight Contract	\$27K	Price reduction over 3 years [\$81K in total]
Hydrogen Peroxide	\$0	Trial was not successful
Copper Scrap Sale	\$130k	Off-set to reduction in obsolete unusable chemicals
Total	\$ 1.193M	

>> Effective use of the warehouse by increasing the product amount being stored within the facility

SCM logistics initially targeted the usage ratio of 70:30 at the Da Phuc warehouse, however, they quickly realized the benefits of reductions in cost if this ratio was increased. By increasing this ratio to 78:22, SCM logistics were able to save more than \$404k in transportation, storage and vessel loading costs for fluorspar. This saving resulted in the effective fluorspar cost reduction of \$16 per ton to less than \$12 per ton.

>> Effective tendering for minimizing transportation cost

The logistics team worked diligently to evaluate the bismuth cement transportation routing and costs. Bismuth cement products offer a low-profit margin and any cost savings opportunities are thoroughly researched.

A tender for the transportation of this product from our site was conducted and interested transportation companies submitted proposals which were carefully reviewed. Savings in the transportation costs were leveraged in the tender process on a price per ton rate, with achieved savings of more than \$12 per ton (drop from existing \$60 to \$48 per ton) These savings were a direct result of intense and lengthy negotiations conducted by the supply teams.

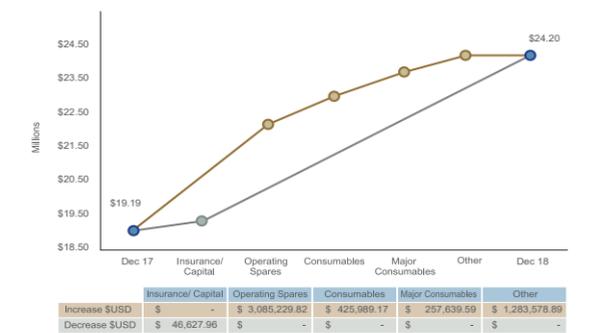
>> Successful inventory process management

The materials management team systematically & continually reviewed 1000's of inventory lines [SKU's] to ensure their classification in the SAP materials master database was correct. Further, monitoring of slow moving, obsolete and stock-on-hand / over requirement [surplus] inventory was conducted throughout the year.

Given that at the end of 2017, the inventory valuation stood at US\$19 M, in 2018 due to the merging of the SCM services of the two companies, both common and unique spares were transferred from MTC to NPMC and the result of this was that the inventory in December 2018 closed with a value of \$24.2M.

The consumption and turn of the common inventory items being used by both NPMC & MTC are critical to correctly manage and ensure that the inventory value is not over-inflated. Inventory has not been inflated by changing the maximum and reorder point levels as we believe this would result in a sharp decline in the coming year.

Dec 17 vs Dec 18, Valuation \$USD





Investing in Human Capital

for sustainable economic growth

- Maintaining well- engaged workforce
- Consolidating a mind-set of a circular economy
- Ensuring a healthy workforce





Highest average income million VND
11.4 /month
in the industry

93,880
training
man-hours

49%
of all employees
are PAP

Kaizen training
for **108**
representatives

Medical training
for more than
1,000
of employees
and contractors



The current trends towards global integration brings about as many opportunities as challenges when viewed through the lens of the upcoming fourth industrial revolution and the consequential high-tech applications. Therefore, it was not surprising to see that "Building Human Capital for Sustainable Economic Growth" was one of the key themes of the most recent Sustainability Forum in Vietnam held in January 2019.

It is widely accepted that good education and proper training act as enablers for the growth of companies, since they foster knowledge and encourage creativeness among employees to build efficient human capital (skills, knowledge, experiences, etc.) for a sustainable business growth.

2018 witnessed a great efforts from our management and the HR team in regards to workforce consolidation, especially in the circumstances of transformation from NP- HC Starck to Masan Tungsten Company (MTC). For this purpose, we have not only increased the efficiency of our workforce through a combined structure, while maintaining an excellent working environment for our employees, but through relevant communication and training activities, we have endeavoured to create and consolidate an innovative mindset of our employees, which is necessary for a new generation of industrial workers in the contemporary context of development.

Maintaining well- engaged workforce

As a result of the successful merger of the Nui Phao - HC Starck joint venture, the former Joint Venture's service departments have been merged into the Nui Phao structure with an immediate effect. The HR department has cooperated with relevant departments to determine an appropriate organizational structure as well as the headcounts needed in order to reorganize the workforce in both NPM and MTC.

Consolidation of the workforce has resulted in reorganization of personnel between organizations with minor change at the MSR level. The consolidated MSR population at the end of year for the past 5 years is shown below.

Number of permanent employees and average income

Year	2014	2015	2016	2017	2018
Employee number in totality	1,356	1,477	1,343	1,363	1,403
• MSR	1,095	1,095	1,027	1,072	1,150
• MTC	261	382	316	291	253
In which					
• Vietnamese	1,213	1,336	1,236	1,261	1,303
• Expats	143	141	107	102	100
Average income (VND million per month) for Vietnamese employees	9.4	9.6	10.3	11.1	11.4



The average incomes of MSR employees remains in the upper industry quartile. The average incomes of employees in the metal-minerals and coal mining industries are at 7,031,481 and VND 10,228,911 per month respectively, while the average income of MSR employees in 2017 was VND 11,100,000 per month and VND 11,400,000 per month in 2018.

The average incomes of employees in the metal-minerals and coal mining industries in 2017

Dept	Average income / person / month (1000 VND)
Coal mining industry	10.228.911
State owned enterprises	10.299.667
Non state-owned enterprises	7.259.363
FDI enterprises	11.653.134
Metal-minerals	7.031.48
State owned enterprises	7.608.812
Non state-owned enterprises	4.829.882
FDI enterprises	13.819.85

STREAMLINING THROUGH STRUCTURAL INNOVATIONS

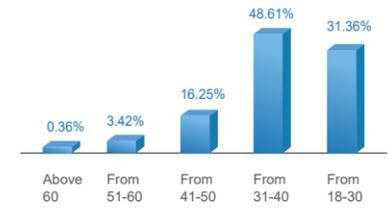
The restructuring process in NPM and MTC was completed without any negative impacts on the production activities as well as the concerns of employees. The combined structure of the two subsidiaries has already delivered a significant outcome in terms of effectiveness and efficiency of our workforce such as:

- Prioritization of resources needed to maintain the management apparatus of two independent companies, being the NPM and the MT
- Decided that it is advantageous to realize the Group's vision of One Masan
- Convenient and economical for training purposes
- Easier to implement one policy in the combined structure, as opposed to 2 different policies in the combined legacy companies.

Upon completion of the merger, a number of key tasks have been implemented such as: work value evaluation, One Masan Ranking and identification of legal provisions for implementation and orientation. Furthermore, recruitment on the basis of the company's sustainable development policy has also been established.

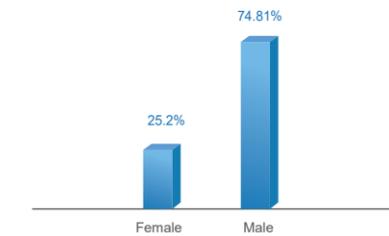
By age

The age of our employees continues to be in the golden age of labor with the average age of the entire workforce being 35, where: the average age of directors is 50, managers 43, superintendents 43, supervisors 38, technical/clerical staff 33, and of laborers 34.



By gender

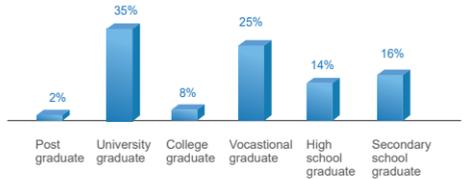
In line with our equal opportunities policy on recruitment and gender equality, women have been employed in all activities. The percentage of female employees occupied over 25% of the entire workforce.



By education

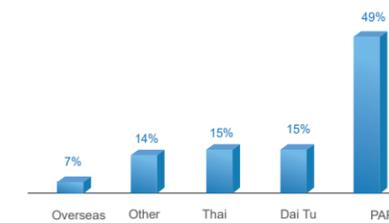
Employee analysis by educational background:

- University and higher: 37%
- College and vocational: 33%
- High school and lower: 30%



By origins

Nearly 79% of all employees are from within Thai Nguyen, 14% from other provinces and 7% from overseas. Especially, we have maintained 49% of all employees who are PAP.



FOSTERING A POSITIVE WORK ENVIRONMENT

It's a great time to be a Masaner while we have been creating a new global force in strategic materials and doing so in a morally and ethically responsible way.

In 2018, we continued to promote positive work environment. All activities which were well-performing in 2017, have continued to operate in 2018. These consisted of regular employee meetings, monthly star awards, health care program, community assistance and sport and recreation events. Further, additional activities have also been created and organized:

- Re-evaluation of work place conditions and feedback encouragement to relevant departments for review and remedial actions.
- Conducting employee opinion surveys as the baseline for the company to understand its employees' perception on what they believe the company has done well and where they expect the company do more in the future.
- Vaccination program made available to MTC employees.



Dialogue meetings between the Trade Union and the Management Board held on a quarterly basis



Vietnamese Women's Day organized for female employees



The "Amazing Race 2018" contest was held to celebrate the Company's day – 18th June. The disciplines included in the contest were marathon, bike-racing, boat-racing and titter bearer race. All contents were well attended by both male and female employees from different departments of the Company. Two Company employees (male and female) individually won the gold medal in the events of marathon and cycling. This event was among many events the Company organized in 2018, and its sole aim was to provide a joyful and relaxed atmosphere to both the contestants and their supporters.



Consolidating a mind-set of a circular economy



The drive towards global integration, brings about many business opportunities, but is also accompanied by some tough challenges. Notably, the fourth industrial revolution is expected to be enabled and accompanied by some high-tech applications. In this context, businesses need to have a sufficient financial capacity because cheap labour opportunities no longer exist. In addition, businesses must be prepared to invest in their employees so that they would be able to access the scientific and technological knowledge existing in the company. Furthermore, all employees must be equipped with the knowledge and appreciation of sustainable economies, resources management and environmental protection.



OVERCOME CHALLENGES IN KNOWLEDGE TRANSFER

One of the tasks we have set ourselves at Nui Phao Mining and MTC is knowledge transfer and employee up-skilling. What we have successfully done with both organizations is achieve the initial transfer of technology, capability via the development and implementation of dedicated training and development programs for the Vietnamese workforce. This will be the same approach we adopt into the future - we will bring in the expertise and technology we need for the business and at the same time we'll develop our local workforce through dedicated training and development programs; and on the back up of our local workforce we will build the number-one tungsten chemicals company in the world.

In line with our well-established employee training strategy, in 2018 MSR has focused on internal training, with the aim of closing the skills gap. Besides, external courses have been organised by our HR team, who invited guest lecturers, moderated and adapted training courses and strengthened the collaboration with universities and professional training institutions.

By the end of 2018, a total of 93,880 training man-hours have been completed, which is equal to 87 man-hours, per permanent employee.

Description	2016	2017	2018
Total cost invested in training (VND)	3,462,738,112.00	3,302,919,766.75	2,167,156,300.00
Total trainer hours	3,531	4,684	4,917
Total training man-hours	75,903	91,339	93,880
<u>In which:</u>			
- Total number of employee rounds trained in professional centers	528	441	1,903
- Total number of employee rounds trained by internal trainers	1,570	2,334	6,781
Total number of contents trained by internal trainers	208	259	347
Total number of contents trained in professional centers	23	27	30
Total training materials developed internally	408	203	131

"The technology which was implemented in the former Nui Phao – HC Starck company appears to have one of the best tungsten processes available. It's not available to everybody. It was quite a lot of intellectual property involved in order to provide high quality products to advanced industrial customers. After the acquisition, we started off with about 15% expatriate involvement from the German workforce, but we are now down to 2 expatriates in the factory. The Vietnamese

workforce has now been up-skilled to the point where they can not only operate the factory, but to operate it competently; they produce consistent quality at the required volume. We believe that Vietnamese people are focused, well-educated, very quick to accomplish world-class standards, and we have the capability and capacity to overcome any challenges in knowledge transfer." - Mr. Miroslaw Banaczowski - MTC Operations Manager.

Dept	Material development	Training implementation
MAINT	56	68
HSS	12	28
PROC	19	200
ENV	0	9
SCM	2	10
ERD	1	8
S&M	0	0
BSS	29	33
M&G	9	12
HRD	3	9
Total	131	377



KAIZEN – 5S

In parallel with the technical training opportunities available to the employees, the company also pays close attention to providing employees training courses, intended to improve the way they approach challenging situations, by adapting new behavioral models, with the aim of increasing labor productivity. The typical course made available to them is Kaizen-5S. The Human Resources Department, in collaboration with the Hanoi National University, has organized this training course for 108 nominated employees from Processing & Maintenance as part of the 1st phase of this program.

- the course has helped employees to recognize 7 waste types in their daily activities and how this waste impacts labor productivity;
- After the course, in each work area, a detailed plan for implementing Kaizen-5S has been deployed. However, it needs to be understood, that making Kaizen-5s part of the work culture takes time.

Since then, the Kaizen 5S program has been implemented in all divisions with the active participation of all employees of both NPM and MTC. The program has, so far, yielded positive changes in the behaviour of the workforce, however, thorough integration of 5S Kaizen into culture is a long way ahead, requiring relentless efforts of all employees to act as one.

- Kaizen – 5S is a tool used for eliminating waste and optimizing labor productivity.
- The course has helped employees to change their long-term mind-set with regards to how they approach challenging situations;

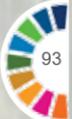


ENVIRONMENTAL RESPONSIBLE



- >> In order to improve the efficiency of waste management, MSR pays special attention to raising awareness of waste classification. In 2018, all operators of the Processing team and the contractors directly engaged in waste classification and segregation were made to attend a training on waste classification. A total of 437 people took this course in 2018.
- >> The training program (outlined in the EIA Report) carried out in 2017 for Vietnamese superintendents, was expanded to expats in 2018 in order to synchronize the responsibilities for environmental protection of all management levels. A total of 27 expats took this course in 2018.

- >> In addition, the participation of a number of environmental events, including the World Environment Day, the Campaign for Cleaner World and the Earth Hour is usually attended by MSR has now been expanded to include the local communities around the mine-site through various workshops and media outlets. Some of the practical items discussed at these events include the minimization of the usage of plastic bags, the induction of waste classification courses for women's union and pupils. The intention of these programs is to increase the effectiveness of waste management and improve rural environment protection. The events were attended by nearly 2,000 participants.



Ensuring a healthy workforce

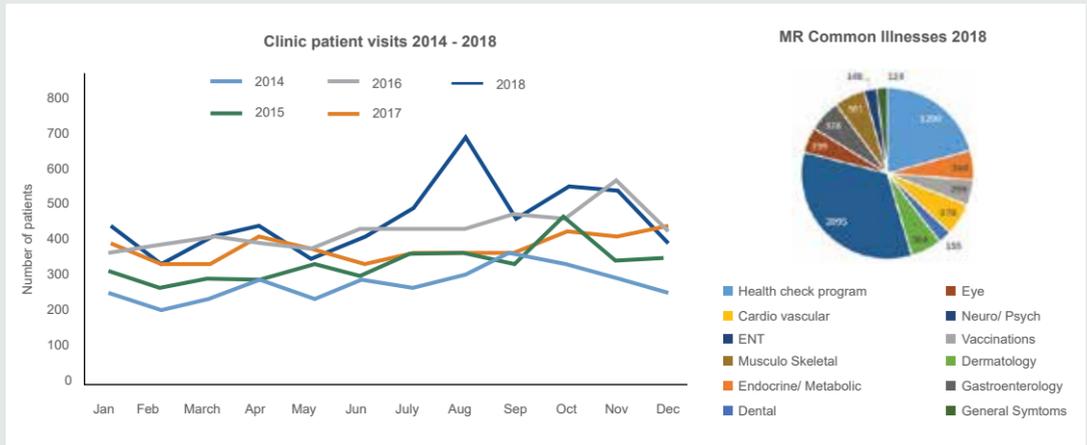
Our primary company focus in 2018 was to ensure that our workforce was not exposed to occupational hazards that negatively affect their health. To reinforce that assurance we have a well-equipped clinic manned by a highly qualified and well-experienced medical team that is proactive in supporting the health and wellbeing of our workforce and also provides additional services to the broader community. Our medical staff have international medical training in managing emergency situations both inside our operational area and as well as the surrounding communities.

Profile of illnesses in 2018

In 2018, the clinic examined and treated 5,560 patients with ailments related to a variety of issues; ranging from preventative consultations to treatment of minor injuries. Our medical staff assisted treating persons involved in community accidents and extended their services to providing general medical treatment to the surrounding community.

Patient attendance at the clinic indicated an increase in patient visits (3,330 patients in 2014; 4,040 patients in 2015; 5,241 patients in 2016; 5,137 patients in 2017 and 5,560 patients in 2018). The cause for the increase in patient care is due to the level of comfort and confidence exhibited to the patients by the site medical team.

The Company health surveillance includes blood analysis, urine tests, chest X-ray's, abdominal ultrasound, lung functionality testing, audiometry, lumbar spine x-rays, cancer markers tests as well as a vaccination program.



OCCUPATIONAL HYGIENE

At our site operations, the Occupational Hygienist, in collaboration with a certified government agency - National Institute of Occupational and Environmental Health (NIEOH), regularly perform monitoring and conduct training programs at our operational sites such as:

- Working environment measurement
- Ergonomic psychological measurement
- Personal noise monitoring
- Monthly occupational hygiene (OH) inspection in our plant areas
- Noise and nuisance mapping
- Food hygiene and safety inspection of kitchens
- OH training for employees such as hearing protection, eye protection, lung protection, fatigue management, fit for work, food hygiene and safety
- Worked in collaboration with the Human Resource department to identify and categorize arduous, hazardous and dangerous work areas in our operations
- Sent OH personnel to international monitoring workshops to keep them abreast of regulatory changes and improve the understanding of OH

MEDICAL TRAINING

In 2018 a total of 114 employees were provided with an advanced First Aid Training (FAT) under the auspices of the American Heart Association. These certified FAT courses covered choking, cardiopulmonary resuscitation (CPR), hemorrhage, fractures, allergies, stroke and burns management. Additional medical training was rolled-out covering:

- A total of 890 employees and contractors were provided training on hearing protection
- Training for 37 local community kiosk food providers covering food safety and hygiene
- 253 employees and contractors were trained in fatigue management, drug and alcohol awareness
- 125 employees and contractors underwent awareness training on patient extrication techniques and incident management
- 323 persons were provided awareness training on communicable diseases and hygiene in the home



OUR CLINIC

MR currently have 12 medical staff members, comprised of four Doctors who hold both General Practitioner (GP) and specialist certificates, 3 Nurses, 3 Physical Assistants, a Pharmacist and Occupational Hygienist.

The medical clinic provides 24 hour support, 365 days a year. The clinic has more than 90 pieces of high-tech medical equipment.



Our medical Doctors attended and completed several international courses such as Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS) and Intermediate Trauma Life Support (ITLS) in Singapore.



A Nurse successfully attended and completed a one-year bridging Physical Assistant program with a second nurse currently undertaking the same program and is due for completion in 2019. Four medical staff attended and received certification in occupational medicine held in Thai Nguyen.



Two Occupational Hygienists participated in an OH workshop in Hanoi and one Doctor and Occupational Hygienist attended a seminar discussion on OSHSAS also in Hanoi.



Medical staff, in collaboration with the ERT, conduct weekly and monthly internal trainings on chemical management, rescue equipment familiarization and regular physical drill exercises in various emergency scenarios.

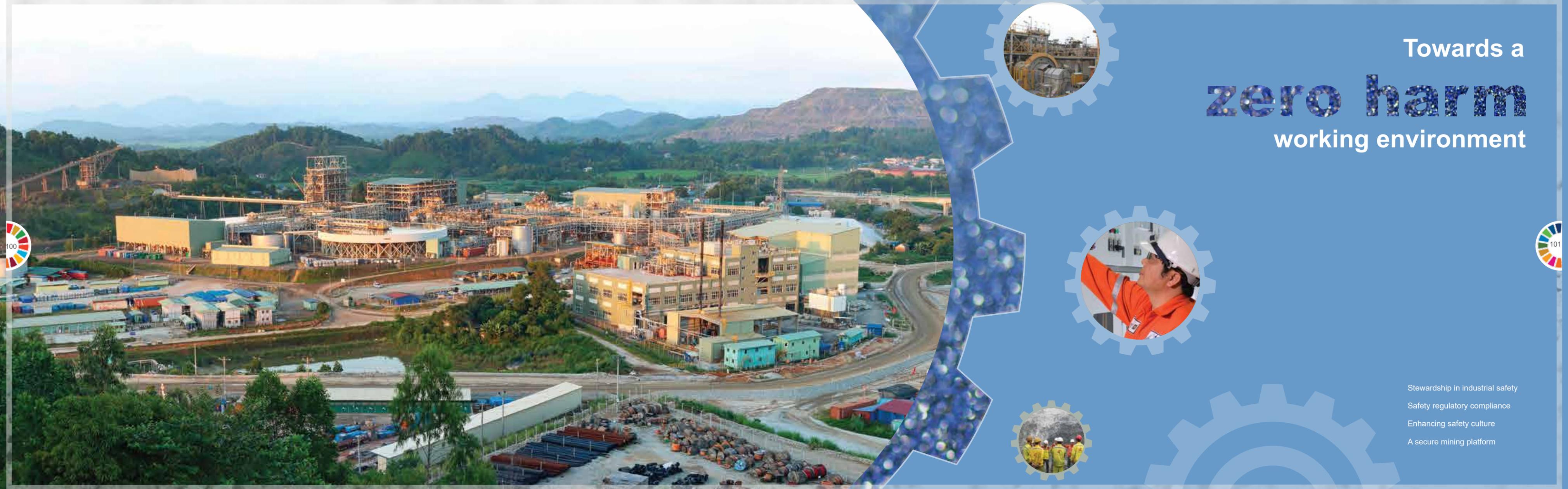
An award was issued by NIEOH to our MSR safety and medical team for winning the 2nd place in the National Occupational Safety and Hygiene Competition.





Focus
in 2019

- 1** Develop and reinforce the competitive employment remuneration package to attract and retain top talent
- 2** Continue to invest in professional development programs designed to improve job skills, leadership capabilities and employee productivity
- 3** Improve the annual and performance appraisal schemes to maximize employees' inputs
- 4** Continue to invest in work-life balance, wellbeing and health care for all employees and their families
- 5** Improve working environment by carrying out occupational health monitoring samples which may affect employees' health



Towards a
zero harm
 working environment

- Stewardship in industrial safety
- Safety regulatory compliance
- Enhancing safety culture
- A secure mining platform



7,553
Take'5s performed

206.519
BAC tests taken place

13
Emergency Response drills performed covering chemical spillage, Rescue at height; internal firefighting and a combined firefighting exercise with the TN Fire Police

The best company in fire protection and fire fighting in Thai Nguyen province

02
Safety Awards by Thai Nguyen PPC

In terms of health and safety, 2018 was a remarkable year. Our safety training programs continued to develop and promote safe work methods and identify control risks in the work place.

Leadership in the field promoted safety awareness and inspired workers to conduct work activities in a safe manner. This active approach has allowed us, as a company, to improve safety awareness, develop a robust safety culture within the organization that assists to reduce incidents. All these safety synergies encourage positive safety behaviours that create a strong foundation towards a zero harm working environment.

Stewardship in industrial safety



In 2018, The Emergency Response Team (ERT) and selected department personnel underwent professional upskilling in advanced emergency rescue training conducted by the Thai Nguyen Fire and Rescue Police

>> In the 1st quarter, the Company received two safety awards with the first award been handed out by the Thai Nguyen Provincial People's Committee (PPC) for achieving excellence in safety. The second award was issued to a company individual by the Thai Nguyen PPC for outstanding safety performance.

>> Furthermore, the Department of Firefighting acknowledged our Emergency Rescue Team members (ERT) for their valued contributions towards the nationwide campaign in fire-fighting and prevention and presented them with an award for excellent achievements in fire prevention and firefighting in Thai Nguyen province.

>> In the 2nd quarter of the year, delegates from the Company attended the 3rd radiation conference in Vietnam sponsored by the Vietnam Agency for Radiation and Nuclear Safety (VARANS) with the participation of delegations from various worldwide radiation and nuclear organizations and associations namely IAEA, EC, ASN, SNSA. At this conference, our MSR operations received an award by the Ministry of Industry and Trade (MOIT) for its excellence in the management of radiation safety.

>> On 24th January 2018 the Company was again voted as the best company in fire prevention and firefighting in Thai Nguyen province and was presented with an award issued by the Thai Nguyen Provincial People's Committee (PPC).



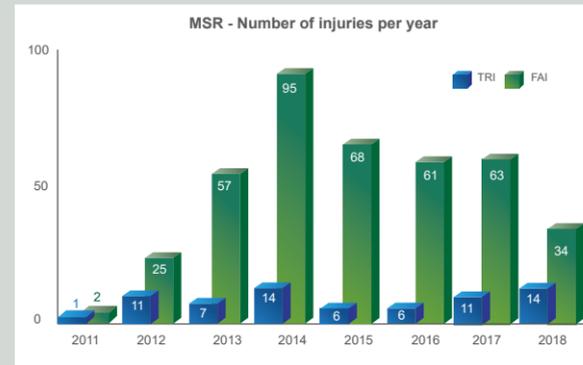
Safety regulatory compliance

At MSR we conducted both scheduled and ad hoc safety and security audits throughout the year. The audits cover all areas under the Company's control, including contractor workshops and their areas of activities. Each audit is carried out with a management representative being present. The selected area under audit is thoroughly inspected and an action list is generated. The action list includes a timeline for appropriate completion with an escalation protocol to ensure actions are completed in a timely manner.

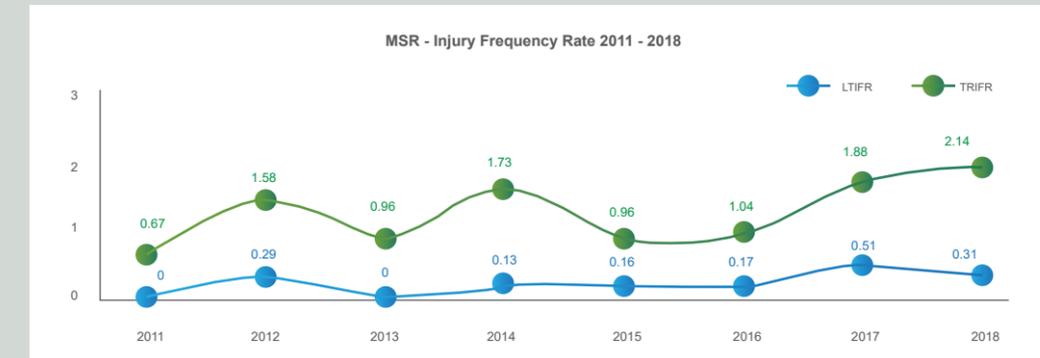
Further focus in 2018 was on document control management using the SharePoint document management and storage system. Our safety administrative staff underwent certification training on SharePoint document and storage system applications. The document control system assists in archiving company documents and provides users with cloud-based international access 24/7. A record number of 1,252 documents were managed through the Document Controller based at the MSR operation. A total of over 44,000 files reside on the SharePoint Document Management System (DMS).

Information, policies, standards and other such documentation are now easily accessible to worldwide users.

To regularly monitor the trends of incidents, the company generates a monthly injury frequency rate graph that contains information on minor to serious injuries in the workplace. This trending helps identify problematic areas and potential high risks in our operations so that appropriate remedial actions can be implemented to minimize and, ultimately, eliminate such risks.



A noticeable set-back in our company safety performance took place in the middle of the year which resulted in two lost time injuries (LTI). Both injuries were related to equipment and manual job tasks. An intensive safety campaign was launched to address the safety complacency by rolling-out refresher safety training on hazard awareness, Take-5 and JHA training as well as refresher training on mobile equipment and safe driving practices. Additional risk training included management of change (MOC) which was rolled-out to the workforce. To strengthen safety in the field, Management, with support from the Safety Officers, conducted numerous field audits as well as increased the number of safety representatives at our operations.



A lost Time Injury Frequency Rate (LTIFR) is defined as an occurrence that resulted in a fatality, permanent disability or time lost from work of one shift or more. The frequency rate is determined by the number of occurrences per 1,000,000 man-hours worked.

Total Recordable Injuries Frequency Rate (TRIFR) includes fatalities, lost-time injuries and injuries that required restricted work activities or medical treatment. The frequency rate is determined by the number of occurrences per 1,000,000 man-hours worked. The TRIFR does not include First Aid Injuries.

Our Total Recordable Injuries (TRI) comprise a combined tally of LTI, RWI and MTI) slightly increased in 2018 to 14 injuries compared to 2017 with record of 10 TRI. This factor can be attributed to a paradigm shift in safety reporting in which workers report all incidents that help identify and address future incidents of a similar nature. This exceptional safety performance can be attributed to the establishment of a prominent safety culture that has been constantly promoted to our employees and contractors.

In order to support our company's vision on safety and health, Masan Resources corporate governance has the Masan Resources Intergrated Management System (MIMS) in place. This system comprises 17 system management standards and 24 performance management standards that ensure we, as a Company, adhere to our safety and health commitment in all our operations. The standards and guidelines are closely controlled and monitored through regular audits.

The compliance with ISO 14001:2015 and ISO 19001:2015 at the Masan Tungsten Chemical Operations showcases Masan Resources' continued commitment to adhering to international standards on environment and as well as on quality control in our final products. These ISO management systems are reviewed and audited periodically to ensure compliance is maintained and controlled daily.



Enhancing safety culture

In mining and processing industries, communication mechanisms are critical for engaging staff in safety activities, gaining cooperation and support, and for the adherence to a positive safety culture. In particular, safety communication is one of the key priorities in distributing valuable safety information to all employees and contractors as well as for obtaining a high level of safety compliance. Throughout the year a total of 14 fundamental safety messages have been communicated to all employees and contractors. These safety alerts were readily available as soft copies and also displayed on notice boards and the company's intranet site. The alerts cover latest health notices, notifications of occurred incidents or general safety topics such as using a certified motorbike helmet when riding a bike, to name but a few.

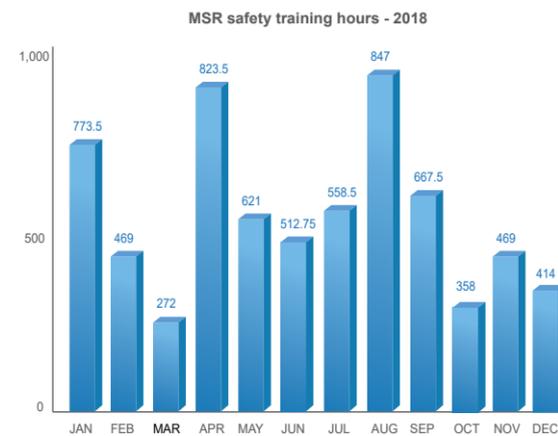


SAFETY TRAINING

We continue to provide various safety-related training services such as hazardous chemicals management, site inductions, in-house safety programs covering hazard identification and actions, risk training, management of change and emergency response training.

A large focus is placed on the lock-out-tag-out (LOTO) procedures and safeguards. As such, an established Safe Work Isolation Procedure System (SWIPS), comprising of 16 separate isolation trainings and certification levels continue to be rolled-out and regularly updated.

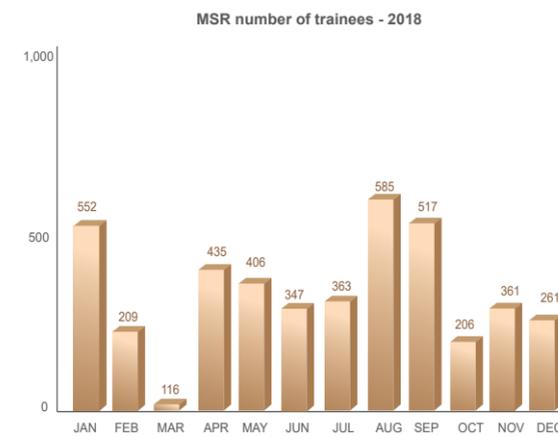
Further safety training conducted cover electrical safety, basic radiation safety, working at height and professional driver training.



THE 'TAKE 5' SAFETY PRE-TASK ACTIVITY TOOL

MR strongly believes in schooling employees with the correct safety habits not only to be used at work but also to help them carry this mindset throughout daily activities – especially at home.

The 'Take 5' safety pre-task activity tool check continues to be well received and utilized by the entire workforce. This safety concept activity teaches employees and contractors on how to identify potential hazards associated with the tasks they are about to undertake, and how to identify and minimise the hazards prior to commencing the task. This year, there were 7,472 Take 5's performed. In 2017, there were 7,553 Take 5's performed.



A secure mining platform

We are aware that the mining environment is harsh and hazardous, which necessitates adequate protective measures. Here, we have comprehensive preventative procedures in place ranging from fire suppression to hazardous security systems. We do our utmost to identify internal and external threats facing our operations to endeavour to develop tailored, end-to-end solutions that improve safety and security of company's operational assets, such as the processing plants, the APT plant, workshops, substations and the control room. Mining has its own unique security needs which dictates us to take a holistic approach to address these needs with a solution that is tailored for our operation, ranging from perimeter protection intrusion systems to video surveillance and access controls.

EMERGENCY RESPONSE

In terms of emergency response, our ERT members at our operational sites continue to collaborate with the Provincial Fire Department of Thai Nguyen in conducting fire drills. The ERT received training on hazardous materials management, vehicle extrication, confined space rescue, high-angle rescue and flood disaster management. To ensure adequate emergency coverage on the sites, a fire truck supported by a water truck and a dedicated rescue vehicle, provisioned with with rescue equipment such as the jaws of life, lifting bags, various rescue gear, hazardous material equipment and an equipped ambulance are always available.

SECURITY ASSET PROTECTION

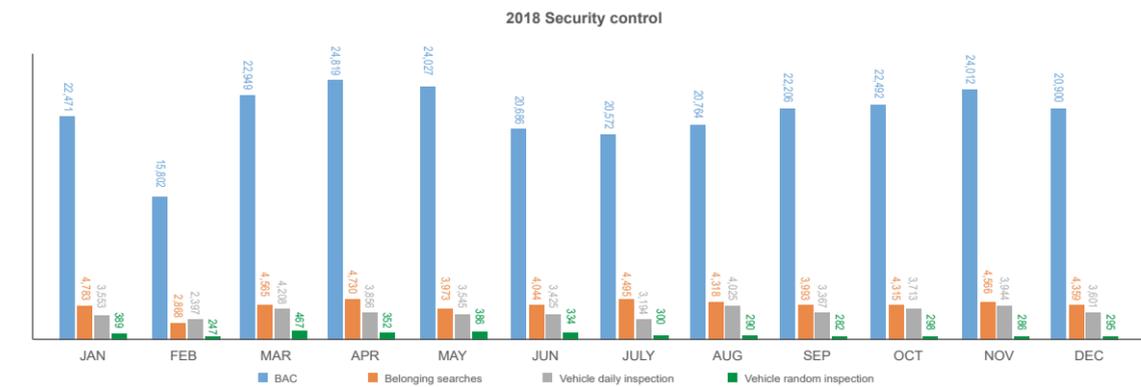
Security asset protection continues to provide a safe work environment for our workforce. A total of 39,591 individual searches and 37,229 searches of vehicles and trucks were performed in 2018.

Security control center at MSR & MTC operations:

- 73 CCTV surveillance cameras
- 523 Emergency calls
- 6,517 Asset control movement forms
- 19,719 Visitor registrations
- 24/7 Control room
- 67 Security movement logging devices
- 4,749 Recorded site patrols

BREATH ALCOHOL CONCENTRATE (BAC) CONTROL

As part of our ongoing drive to ensure workers are fit for work, the blanket Breath Alcohol Concentrate (BAC) testing continues to drive a fitness for work safety culture at our operational sites. All workers are routinely tested during shift changes as well as ad hoc testing during shift work. At the beginning of the BAC blanket testing initiative, we had a higher rate of positive BAC tests, however, the workforce gradually became aware of the fit for work practices, which resulted in a reduction of positive BAC tests. We conducted a staggering 206,519 BAC tests with only 21 positive cases in 2018.





Focus
in 2019

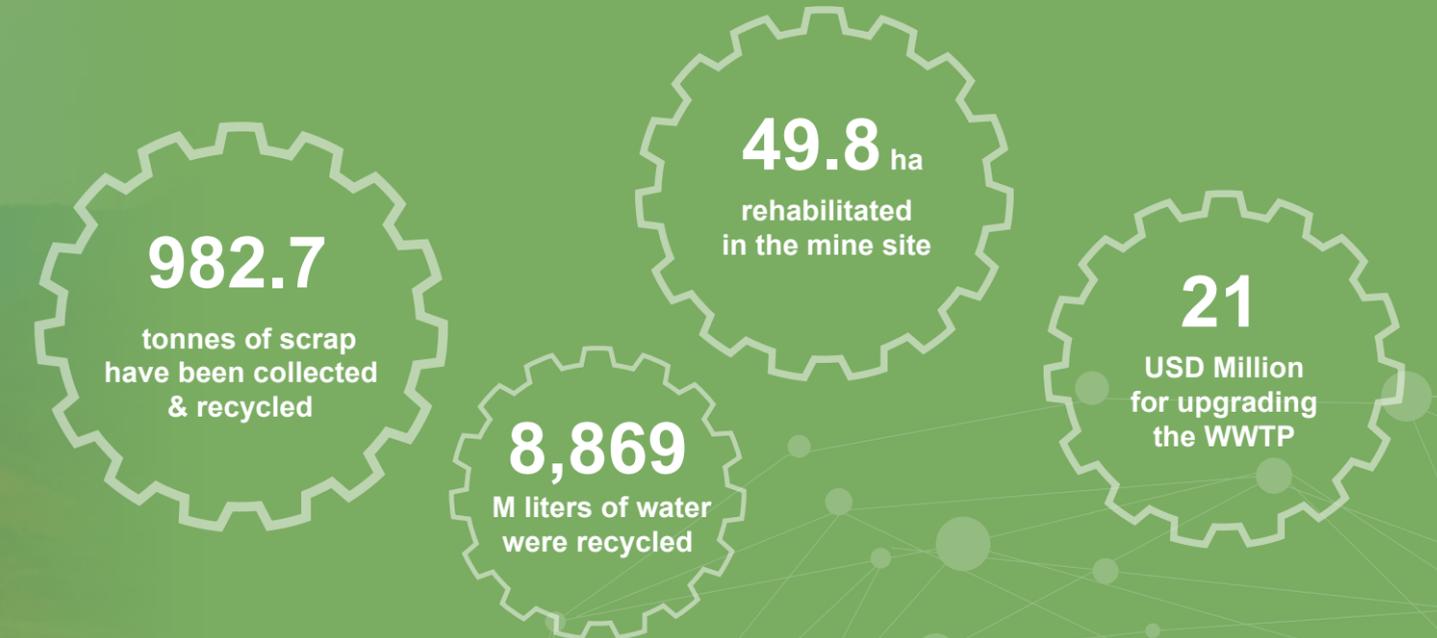
- 1 Achieve TLTI_{FR} of < 0.40 by end of 2019
- 2 Conduct a GAP analysis of Contractors vs MR STD's and implement a compliance targetting 70% adherence by end 2019
- 3 Roll-out behaviour programs on BAC and illegal substance abuse and reduce occurrences vs 2018
- 4 Conduct 6 CHES general meetings
- 5 Conduct ERT rescue exercise with 6 internal and 1 external involving government and firefighting services
- 6 Implement a functional risk and audit module on our Incident Management System application (OcSafe)
- 7 Roll out Taproot Investigation Methodology



The 'circular' approach to sustainability

- Material management
- Waste management
- Energy and greenhouse gas emissions
- Water sourcing and waste water management
- Rehabilitation





In the recent years, the concept of a circular economy was devised to overcome the limitations caused by the exhaustion of natural resources. An economy which relies on the use of commodities which are not renewable and will be exhausted after a certain period of time, is considered to be unsustainable.

As the unique properties of our mine operations are metals and mineral resources, the traditional mining process is limited in scope and, effectively, non-productive. On the one hand, we have to apply advanced scientific knowledge and techniques in order not only to maximize the recovery rate of our minerals but also to improve the quality of our products so as to maximize the value of the natural resources. On the other hand, we set the targets and implement the '3R Approach' in all aspects of our operations, with a particular focus on environment protection in mining and mining related activities.

2018 witnessed numerous collective and collaborative efforts undertaken by the company to address issues pertaining to materials management, waste and water management as well as the rehabilitation works. The combination of all these aspects shows our dedication to responsible and sustainable use of materials and resources.

Material management



The Nui Phao mine is a typical polymetallic mine of tungsten-fluorite skarn deposits; mineable metals include tungsten, copper, bismuth and fluorite. Considerable amounts of soil and waste rock materials need to be excavated in order to recover these commercial metals. Nui Phao waste is known to have the potential or high concentrations of arsenic and Sulphur, which necessitates adequate waste management measures. As the results, we have taken a stand on waste and are moving towards more circularity in our business models. To enable this, we classified our materials into renewable and non-renewable.

	2013	2014	2015	2016	2017	2018
Renewable materials (m³)	4,548,698	4,548,698	2,346,040	3,205,405	1,116,968	1,177,317
Waste rock for construction of dam wall	2,127,551	2,127,551	1,942,208	2,246,162	948,806	924,832
Soil for dam construction	2,230,538	2,230,538	302,515	555,702	96,261	198,305
Others (civil activities)	190,609	190,609	101,317	403,541	71,901	54,180
Non-renewable materials (m³)	1,245,979	1,245,979	3,817,756	3,444,986	4,594,286	4,768,241
Waste disposed in the Waste dump	141,711	141,711	1,203,342	2,675,276	3,696,926	3,896,736
High-sulphur waste dumping in STC	1,104,268	1,104,268	2,614,414	769,710	897,360	871,505



RENEWABLE MATERIALS

Clean waste rock and soil material that does not contain high amounts of sulphur is considered for recycling purposes, including TSF wall-dam construction and other civil projects (road repairs and community support). In 2018, **we recycled 1,177,317 m³ of clean waste rock**, soil and other materials for TSF wall-dam construction and other projects, compared with 1,116,968 m³ in 2017.

NON-RENEWABLE MATERIALS

In 2018, MSR constructed a high arsenic storage in North Waste-dump to isolate the quantity of waste rock released from Hill #5. The procedure of the design dossier was established by a licensed vendor, and the as-built dossier was submitted to MoNRE, Thai Nguyen DoNRE for their comment and approval.

In 2018, 4,768,241 m³ of non-material renewable materials have been isolated, in which 3,896,736 m³ was clean waste rock and 871,505 m³ of high Sulphur waste. In 2018, the quantity of non-renewable materials increased against 2017.



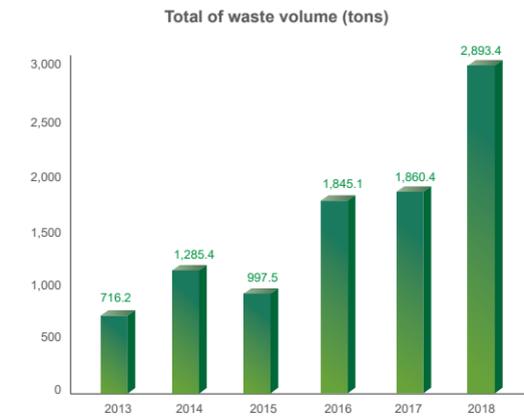
Waste management



Efficient waste management is the leading principle in the activity of MSR's waste management, which not only ensures environmental compliance but also demonstrates the responsibility in environmental protection works and resource saving. Waste generation at the mine site is initially sorted, then stored in accordance with the relevant processes and regulations and, subsequently, transferred to the licensed vendors for disposal or recycling as secondary raw-materials.

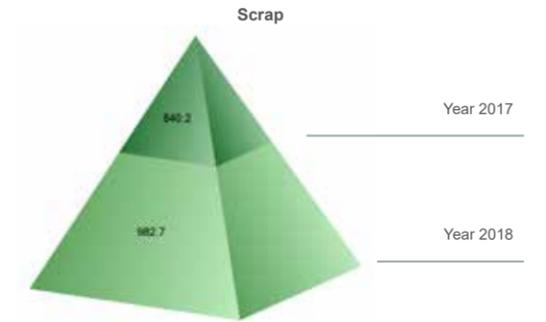


	2013	2014	2015	2016	2017	2018
Hazardous waste	47,4	623,9	430,5	396,5	383,2	562,2
Domestic waste	668,8	661,5	567	765,5	637	641
Industrial waste	-	-	-	-	-	708
Scrap	-	-	-	683,1	840,2	982,7
Total of waste volume (tons)	716,2	1.285,4	997,5	1.845,1	1.860,4	2.893,4



In 2018, MSR handed over a total of 1,910 tonnes of waste to licensed contractors, out of which 562.2 tonnes of hazardous waste, 641 tonnes of domestic waste and 708 tonnes of industrial waste. In addition, **982.7 tonnes of scrap have been collected and recycled**. These quantities of waste generation reflect to the dismantl camps where need to clean up for the production storage.

In 2018, a total of 982.7 tonnes of scrap were collected and recycled, which was **approximately 20 % higher compared to 2017**. This achievement was made possible by the tremendous efforts of all MSR employees working towards the goal of minimization of waste generation and recycling scrap.



The research of wasted wood recycling as fuel for apt boiler

MSR not only manages waste in accordance with the compliance procedures, but also strives to find the methods of waste recycling with the aim of saving resources and reducing emissions. In 2018, MSR introduced a research model of waste wood recycling as a fuel for the APT boiler. During the operation, MSR generates a large amount of clean waste woods which can be reused as a fuel by the APT boiler. In order to assess the viability

of this proposal, an experimental model was implemented in October 2018. For this purpose, waste wood was chopped, mixed with coal and then fed to the boiler. The assessment showed that burning wood with coal resulted in an amount of 11 % lower steam generation, compared to burning coal alone. In effect, the experiment of mixing of wood with coal does not meet the demand for steam production, and has, thus been abandoned.

Although the research on wasted wood recycling as a fuel for the APT boiler has not been successful, it has demonstrated MSR's initiative sprit and efforts to reduce waste generation. In addition, MSR intends to continue its research on this matter in the coming years.



Clean Wasted Wood



Wood Chips



Wood Chips mixed Coal



Energy and greenhouse gas emissions

ENERGY CONSUMPTION

In 2018, total energy consumption was 1.175.358 GJ (compared to 1.104.791 GJ in 2017). The increase in energy consumption is primarily due to the increased level of on-site transportation activities and the new technology lines, including High Gravity (HG), Ore sorter, upgraded WWTP and Wet High Intensity Magnetic Separation (WHIMS) being put in operation to improve the effectiveness of mineral recovery as stated in our commitment to the governmental authorities.

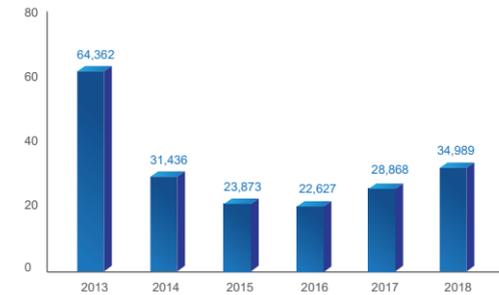


	2013	2014	2015	2016	2017	2018
Total of Energy Consumption (GJ)	1,075,248	849,487	871,433	981,499	1,104,791	1,175,358
Petrol	13,750	5,213	2,794	928	2,288	2,238
Diesel	864,708	423,794	322,980	306,817	391,611	475,166
Electric Power	196,790	420,480	545,659	673,754	710,892	697,954

GREENHOUSE GAS (GHG) EMISSIONS

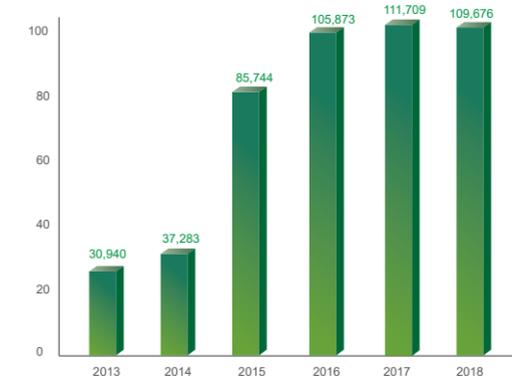
Direct GHG emissions (SCOPE 1)

Our direct GHG emissions are generated by the gasoline and diesel consumed by vehicles, equipment and back-up generators. In 2018, we emitted 34,989 tons of CO₂ against 140,577 tons of CO₂ in 2017.



Indirect GHG emissions (SCOPE 2)

Electric power needed by the project is supplied from the national power grid through our 110kW sub-station. In 2018, we consumed 697,954 GJ equivalent to 109,676 tons of CO₂, compared to 710,892 GJ equivalent to 11,709 tons of CO₂ in 2017.



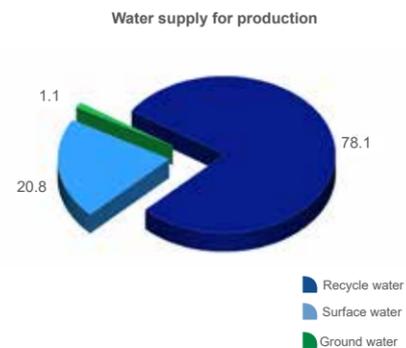
	2013	2014	2015	2016	2017	2018
Total of GHG emission volume (tons of CO₂)	95,302	68,619	109,618	128,500	140,577	144,665
Direct GHG emissions (SCOPE 1)	64,362	31,436	23,873	22,627	28,868	34,989
Petrol	979	371	199	137	163	159
Diesel	63,383	31,064	23,674	22,490	28,705	34,830
Indirect GHG emissions (SCOPE 2)	30,940	37,283	85,744	105,873	111,709	109,676



Water resources and waste water management

MSR recognizes the importance of water resources for sustainable development and applies an integrated method of water resource management, involving multiple purpose usage. This method has been applied effectively in many countries in the world and ensure the harmony of the benefits of water extraction and its usage by the stakeholders in the region.

The main water supply for the operation of MSR comes in the form of recycled water from the Tailing Cells Facility (TSF), Pit Transfer Pond (PTP) and Sediment Pond in WWTP, which accounts for about 78% of the total water demand for processing. The water from surface and ground resources is additionally extracted in order to meet the demands and ensure a smooth operation of the mine. In 2018, a total of 11,520 M liters of water was extracted from surface and ground water resources against 11,470 M liters in 2017.



	2013	2014	2015	2016	2017	2018
Total water volume used (million liters)	5,383	12,528	12,586	10,977	11,472	11,520
Raw water (Cong River water)	516	1,332	1,416	1,259	1,268	2,393
Ground water for domestic	87	84	93	48	32	37
Ground water for production	114	718	644	281	493	98
Recycled water	4,666	10,394	10,433	9,389	9,680	8,992
- Water from OTC	-	2,708	3,040	2,597	2,327	2,951
- Water from STC	-	7,521	7,043	6,497	6,755	5,603
- Water from Pit Transfer Pond	-	165	350	295	69	414
- Recycled water from DP2	-	-	-	-	-	24

SURFACE WATER

The demand for raw water by our Processing Plant was principally met by extraction from the Cong River. As required by MoNRE, MSR submitted the application dossier for the adjustment of the flow rate extracted from the Cong River and supplementation of water users. In consequence, Thai Nguyen PPC issued a new licensed capacity of 8,400 m³ per day for the entire year. The total volume of surface water extraction makes up approximately 21% of the total raw water demand.

GROUND WATER

MSR extracts the ground-water for 2 primary purposes: domestic water supply for the contracting employees and for the mine operations.

In 2018, MSR extracted 37 M liters for the domestic purpose against 32 M liters in 2017. The total volume of extracted water met the permissible allowed amount as stated in the license.

MSR operates a withdraw bore (TW01B1) to withdraw ground-water at the Open Pit, which is entirely consumed by the Processing plant operational activities. A total of 98 M liters were withdrawn in 2018. TW01B1 stopped extracting since 6/2018 due to locating inside the development of Pit and completing the backfill and return the license to Thai Nguyen PPC accordance to the regulation.

RECYLED WATER FOR PRODUCTION

MSR has recognized that the recycled water is an important target for sustainable development in the operation, so this consideration is the main water sources to the activity of production of processing plant. MSR continues to promote technological improvement in order to maximize its ability to use recycled water in every operational stage of the Processing plant. In 2018, 8,969 M liters were recycled from TSF and the water reservoirs.

WASTE-WATER DISCHARGE QUALITY AND QUANTITY

At the request of the MoNRE, in 2018, MSR completed the upgrade of WWTP. The total cost of the upgrade of the WWTP was about 2.1 M \$US.

	2013	2014	2015	2016	2017	2018
Total water volume discharged (M liter)	4,637	4,634	4,196	5,128	5,057	5,197
DP1	4,597	1,859	2,781	1,642	-	-
DP2	-	348	32	3,166	4,520	4,895
DP3	40	2,427	1,383	320	537	302
Total Rainfall (mm)	2,746	1,841	2,078	1,668	2,568	2,083



The completion of the upgrade of the WWTP has increased the effectiveness of waste-water treatment, ensuring all waste-water of MSR is collected and disposed of in compliance with the standards before being discharged into the environment through DP2. In 2018, MSR discharged a total of 4,895 M liters through DP2 against 4,520 M liters in 2017.

In addition, for the purpose of improving the efficiency of waste-water treatment, MSR has continued with the practice of maintaining an internal control treatment inside the

waste-water treatment works, such as: operating the "aerated water-fall", oxygen injector turbines and water paddles at OTC and STC and the optimization of chemical usage at the processing stages in order to minimize the chemical residues in waste-water.

For control of the run-off water from the North waste-dump, in 2018, MSR installed a system of lime dosing to control pH in the upstream of the discharge point before discharging it through DP3.



Rehabilitation

In 2018, MSR has continued environmental rehabilitation works in the area where earthworks have been completed. The main aim of these rehabilitation works is to stabilize the embankment/slopes with minimized erosion, soil improvement and development of a cooperation with recognized organizations to further improve environmental rehabilitation and also to promote the environmental commitment of MSR to the community.

EXTENDING PLANTATION AREAS

In 2018, MSR rehabilitated an area of 11.1 ha at the slopes of Waste dumps, buffer zones and other disturbed areas in the progress of mining and operations. MSR used a variation of plants and materials to increase the efficiency of environmental rehabilitation and restoration works. A total of 23,876 Acacia trees have been planted, 2,729 kg of grass seeds sowed, and 4,451 kg of fertilizer used. Since the commencement of the project to the end of 2018, MSR rehabilitated a total of 49.8 ha, making an important contribution to environmental protection works in the mining activities.

	2017	2018	2011 - 2018
Total of rehabilitation area (ha)	10,3	11,1	49,8
Waste-dump	8,4	7,7	19,3
Buffer zone	1,5	1,4	2,9
Other	0,4	2	27,6



Before



After

ONGOING ENERGY CROP PROJECT

In 2018, MSR continued cooperating with the Independent Institute for Environmental Issue (UfU) – Federal Republic of Germany on the energy crops pilot scheme at the mine site.

At the beginning of the collaboration, the VA06 grass and Acacia hybrid were chosen as the main crops for the current and future rehabilitation programs. In 2018, a total of 10 ha of Acacia hybrid and 3 ha of VA06 grass have been planted on the slopes of Waste-dumps. From 2016 to 2018, nearly 105 tons of VA grass was provided free charge to PAP. The collaboration programs between MSR and UfU has been positively acknowledged by the PAP, local authorities, media and state agencies. Concurrently, in the framework of the collaboration program between MSR and UfU, both parties have coordinated the biodiversity research on the energy crop pilot scheme in order to evaluate the improvement levels of biodiversity.

In 2018, a total of 12 tons of VA06 grass was provided free charge to Project Affected People (PAP) as the seeding and cultivation in order to support and encourage the development of an economical family model, affiliated with MSR's community support programs.



On 9/10/2018, MSR and UfU organized a site-visit and workshop on energy crops at the mine site as a platform for discussions about the crops pilot scheme and also to evaluate the results of a 3-year long co-operation.



According to the initial observation and evaluation, the scheme has resulted in a return of its native animals and insects and in the diversification of soil microorganisms. These preliminary results of the energy crop pilot scheme are the first steps and both parties intend to conduct further research on other areas of the MSR mine site.



VEGETATION IN WASTE WATER TREATMENT



>> Revitalizing the levated & poluted marsh area

During the first stage of the project, the selected site for the constructed wetland is an elevated marsh area rich with iron and arsenic minerals. The wetland is fed by leaking water from the old tailing waste-dump of the Dai Tu Tin enterprise and is located in front of the discharge point of MSR. Before constructing the wetland, MSR renovated and cleaned the selected area by filling it up with clean soil and rock in order to provide a solid foundation and embankment so as to prevent the impact of the polluted water.

>> Realizing an idea of “An artificial bio-filtration plant”

Futhermore, MSR has been researching the ways to improve waste-water quality by using the tried and tested wetland model. Initially, planting had been done by vetiver planting directly on the ground, which was then improved by planting on the floating rafts.

After completion of the research of the optimal planting methods, both methods have been fully replaced by umbrella planting (propagating from leaves), which has been shown to be the most efficient method. The plants on umbrella rafts have been shown to grow well, and with strong stems, trunks, leaves and strong roots look like “an artificial bio-filtration plant” that purifies and improves waste-water quality.

>> Building eco- friendly environment

The waste-water in constructed wetlands is relatively clean, clear, while well-grown umbrella rafts facilitate the development of natural aquatic life. This is a clear indication of the effectiveness of NPMC’s waste-water treatment methods.



Since 2015, MSR commenced the construction of a wetland in order to improve efficiency and better waste-water quality prior to discharge into the environment. The MSR’s solution is an environmentally friendly waste-water treatment model based on the ability of some plants to absorb and metabolise made BOD, COD and other heavy metals in waste-water, so as to reduce their released concentration into the environment.

A total of 620 umbrella rafts have been placed into the setting ponds on the surface-water area of 3,000 m². The successful application of the constructed wetland model has completely changed the landscape of the previously polluted area and has become a highlight point in MSR’s environmental protection works.

In 2018, MSR was also visited by State agencies and international organizations, in the capacity of inspection of this discharge point. The visitors were truly impressed to hear and see effectiveness of MSR’s waste-water treatment.





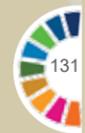
Focus
2019

- 1 Complete all requirements in compliance with the EIA Report approval and current regulations.
- 2 Complete the transmission of monitoring data at 2 automatic waste water monitoring stations and 1 automatic gas monitoring station to DoNRE.
- 3 Transfer OTC tailing to capable and licensed vendors for recycle into products that can deliver economic value and minimize environmental impacts.
- 4 Restructure the WD-SP into Wetland to treat the heavy metals.
- 5 Complete the study of TSF seepage assessment – stage 2
- 6 Continuation of training course on environmental awareness for the expats according to the EIA Reports approval.
- 7 Continuation of co-operation with Ufu (Federal Republic of Germany) on the energy crop pilot scheme at mine site and continue research on biodiversity conservation in the designated pilot area.



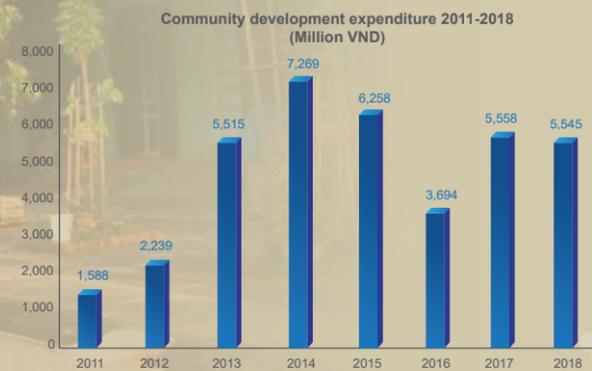
Sustainable growth for our communities

- Sustainable economic growth in our communities
- We are caring about community sanitation & health
- We are caring about our children
- Making our contribution more inclusive





- 21%** VietGAP tea in Dai Tu district
- 15** Training course for 633 community participants
- 185** people from vulnerable groups received health care services
- 500** school pupils have a reading space
- 97** households in the communities have clean water supply
- 200** H'mong Ethnic pupils have facilities provided



In mining and extractive industries, the investment in neighboring communities lays the foundations of long-term sustainable business development. Since the early stages of operations, MSR has striven to work with our neighboring communities to help them to improve. We started by together identifying the main challenges that the communities were facing as a result of mine operations and involuntary displacement. Accordingly, based on the identified needs and expectations of a variety of community groups, we have developed appropriate community development projects which, gradually, evolved into strong partnerships with the local government, the contractors, the social institutions, NGOs to name but a few.

In keeping with MSR's involvement pledge with the community, in 2018 the Company has contributed VND 5,545 billion towards community development initiatives and the CSR activities in Thai Nguyên Province. The review of our outcomes showed that most of our efforts represented the basic principles of a sustainable community, namely, trying to take a long-term systems approach to community problems by addressing environmental, economic, and social issues in an integrated manner. In particular, our crucial contribution has been recognized in the fields of sustainable agriculture, household's economic development, the community sanitation, health-care and, children's well - being.

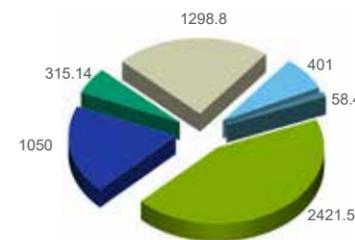
We believe that such community development initiatives can ultimately integrate the role of mining into the broader context of sustainable development and national plans to achieve the Sustainable Development Goals (SDGs).

Sustainable economic growth in our communities

MSR is committed to a comprehensive approach to sustainable community development. We found that sustainable agriculture have been an important safeguard system for rural livelihoods. In 2018, we continued to pursue and expand our support of the agricultural extension services with a constant focus on local competitive advantages including tea, vegetable cultivation, and, at the same time husbandry- farm models as a new agricultural advantage for the community.



CDP expenditure as per Area of support



- Infrastructure
- Agriculture & livelihood support
- Capacity building
- CSR
- ER fund
- Community health, water & sanitation

INFRASTRUCTURE FOR NEW RURAL DEVELOPMENT

Community infrastructure is an important component of the Company's community sustainable program because infrastructure is essential to the local socio-economic development.

In 2018, the Company supported neighboring communities to construct over 600m of rural concrete roads (section of Hang Ran -village 6 in Ha Thuong commune and section of village 6 Ha Thuong to Luoc 2 village, Phuc Linh commune); upgraded 150m of irrigation channel (Goc Bong area, Ha Thuong 4 village); renovated the martyr's cemetery in Hung Son town; built toilets and courtyards, gates and roofs for the cultural houses of Tan Linh 13, 14 villages and provided equipment for 14 cultural houses of Tan Linh commune.

» In 2018, the MSR provided thousands ancillary support including 1170 chairs, dozens of audio systems and desks for 14 village cultural houses of Tan Linh. In addition, the neighbouring villages (Tan Linh 13, Tan Linh 14) received more priorities from the MSR to build toilets, fences, roofs and yard of their cultural houses. Together with the resources invested in other areas including rural environment and sanitation and capacity building, the total value supported by the MSR for Tan Linh was approximately 640 million VND which was a significant boost for Tan Linh to meet their goal of being recognized as a new rural commune by end of 2018.



» The inter-commune road from Luoc 2 village-Phuc Linh commune to village 6- Ha Thuong commune was degraded with potholes and landslides. Upon receiving the community's request for support, the MSR have upgraded 355m of the road, under the supervision of both communes. Local people contributed surface, labour and grew plants along the road. The project benefited approximately 300 local people including students who go to schools everyday using this road.



PERSISTENTLY PURSUING VIETGAP TEA MODEL

Under VietGAP tea program, in 2018 two more groups with 54 households were able to obtain VietGAP certificate. We also organized study tour for 100 tea plantation households to a well-known safe tea producer in Tan Cuong and an organic tea producers in La Bang.

Until now MSR has supported the establishment of 13 VietGap tea plantation groups of 355 households, making a total area of 87,54ha of VietGap. According to statistics of Thai Nguyen Centre for Agriculture Commodity Quality Inspections, MSR contributed to 21% of Viet GAP tea area in Dai Tu district and 10% in Thai Nguyen province.

The economical irrigation system

The economical tea irrigation system, allocated by MSR in Tan Linh commune is one of the technical advantages in plantation. This system enables to significantly reducing labor, saving water and time for tea farmers; especially in winter season, it also helps to increase productivity of tea plants.



Study tour to VietGAP tea model in Tan Cuong

During La Bang and Tan Cuong study tour, the households directly observed and learnt about the techniques the use of safe plant protection products and organic fertilizers, the best techniques for harvesting, processing and drying tea. In addition, through the sustainable tea plantation and production model in Tan Cuong and La Bang, the farmers experienced long term benefit of safe tea plantation practice in term of health care and product reputation.



BUILDING A MINDSET OF SAFE CULTIVATION AND HUSBANDRY

The 2018 witnessed significant community training activities, especially in terms of safe cultivation and animal husbandry. In partnership with the local authorities and professional institutions such as the Dai Tu District Agriculture and Rural Development Department, the Thai Nguyen Center for Science and Technology Transfer, MSR has organized 15 training courses for 633 participants on such topics as using safe plant protection drugs, sanitation and safe methods and use of bio- products in animal husbandry, and tea & vegetables cultivation etc.

STT	Training contents	No of courses	Participants
1	Training on safe utilization of pesticide for Hung Son safe vegetables cooperatives	01	60
2	Training on safe breeding and veterinary hygiene for husbandry facilities owners	02	130
3	Training on food safety and hygiene for tea growers, tea processing and trading facilities	01	40
4	Training on bioproducts utilization in husbandry and cultivation	05	350
5	Training on VietGAP tea plantation and production standards	06	53



“The study tours and training have enabled farmers to obtain useful experience and techniques such as the knowledge of the appropriate time needed for fertilizing, spraying pesticides and the best time for harvesting in order to achieve the best tea quality. They also learnt about the drying equipment operated by gas, instead of the traditional wood stoves, which allowed easier heat control which, in turn, improved both the quality and appearance of tea products. Immediately after the visits, some households replicated the cultivation techniques or purchased the equipment for their own production activities”.

Mr. Pham Thanh Binh - Chairman of the Hung Son Farmer’s Union



Learning about tea harvesting techniques and electrical drying machine

In 2018, MSR provided financial and technically training support to a chicken farm in Phuc Linh commune allowing the farm to be certified with VietGAP in husbandry at the provincial level. Up to this point, this is the second breeding & animal husbandry farm in Dai Tu district which have been certified with VietGAP standard. The first one was the pig farm in Hung Son commune, which received VietGap certification in 2017 with MSR support.



MAKING THE ECONOMIC RESTORATION FUND USABLE FOR SUSTAINABLE AGRICULTURE

The micro-finance fund continues to uphold itself as an effective and innovative economic restoration model. In 2018, the fund provided favorable loans for 26 additional households. Currently, 256 households are utilizing the fund for a great variety of income generation activities. To date, the total accumulated funds amounted to 9.358.000.000 VND.

Mr. Dang Xuan Kinh’s family (village 9- Tan Linh commune) have been cultivating tea for over 20 years. In 2017, he joined the VietGAP tea cooperative group established with the support of MSR and took a loan from the MSR’s economic restoration fund (VND 50 million) to expand the tea cultivation area by 60% of. In 2018, he went on a study tour of the organic tea cultivation model in La Bang commune. Currently, with 2 labourers and over 1 ha of tea, in the peak season, his family created jobs for 4 to 10 local workers. Mr. Kinh said:

“Although I have been making tea for a long time, only after I participated in the VietGAP cooperative group and visited the organic tea model, I have broadened my tea cultivation knowledge, which made me determined to pursue clean and safe production methods. I hope the Company will continue its support by connecting us with technical consultants and enterprises so that we can continue deploying organic tea production in my own farm, not only for the sake of our family’s health but also for our customers’ health and for the sustainability of tea production”.



Ms. Doan Thi Thuy (Xuan Dai village, Hung Son town) is a member of the Hung Son safe vegetables cooperative. Apart from taking part in a wide range of activities supported by the MSR such as the training on VietGAP-certified vegetables, safe utilization of pesticides, utilization of bioproducts (effective microorganisms) in cultivation and study tours, Ms Thuy also took a micro-credit loan (50 million VND) from the MSR’s Economic Restoration fund. Her intention was to invest in a net house and was financially supported to build a

clean water system for irrigation. With a persistent application of safe practices on over 3000m² of vegetables, she is now able to provide stable delivery to big customers in Thai Nguyen city and Dai Tu district and with a monthly income of VND 10 million. Ms.Thuy confirmed that her income is now two times higher compared to the time before she availed of the micro-credit loan. More importantly, according to her, she no longer has to worry about the side effects of using fertilizers and pesticides.



We are caring about community sanitation & health



Poor sanitation and unhygienic practices are a big issue that may lead to diseases, health problems and threaten people's well-being. In 2016 and 2017, Masan Resources, in collaboration with international, governmental and non-governmental partners, have made significant contributions to the improvement of local environment and sanitation. In 2018, the Company continued to support the operation of the Ha Thuong commune's waste collection group while investing significant resources to improve the environmental and sanitary conditions of Tan Linh commune.

IMPROVING RURAL WASTE MANAGEMENT

Tan Linh is among the most disadvantaged communes in Dai Tu district but has the largest tea cultivation area in Thai Nguyen province. With over 700 ha of land dedicated to tea cultivation and over 98% of the population living of tea, the commune is at high risk of soil degradation and water and environmental pollution caused by the abuse of plant protection drugs and chemical fertilizers. Moreover, the rural waste management program is not in place and there is a high tolerance to illegal dumping, resulting in dozens of public places like bridges, streams, roadsides, village gates being contaminated. During 2018, MSR conducted 16 training workshops and campaigns for 600 participants about domestic waste classification, use of biological products to treat

decomposable garbage and minimization of plastic bags in daily activities; supported the establishment and operation of 7 clubs of "women with environment protection"; assisted the collection and treatment of harmful chemical waste; provided communication materials (sign boards, brochures, posters, etc) and promoted monthly action programs to clean up public places in every village. By the end of 2018, there have been some positive environmental developments. For example, there is a waste collecting group in place and 50% of the population are using the waste collecting service. Illegal dumping has diminished and a great deal of roads have been decorated with flowers.



CLEAN WATER SUPPLY

The clean water support program for Ha Thuong commune, which started in 2017 continues to be maintained and expanded. In 2018, an additional 164 people from 48 households in Ha Thuong 6 and Ha Thuong 2 villages benefited from this program. There are currently 371 people from 97 households benefiting from the program. Thus, compared to 2017, the number of households benefiting from the program increased by 96% and the number of beneficiaries increased by 79%.

By the end of 2018, the Company joined Church World Service- an NGO organization to implement a pilot project on supporting 50 low-income families and households of with filtration tanks using biotechnology.



COMMUNITY HEALTH CHECK

In 2018, the Company conducted various health awareness programs on disease prevention covering conjunctivitis, fatigue management and as well as a medical campaign within the surrounding community where our clinical staff carried out healthcare services for 185 people who were affected by the chemical agent known as Orange agent.

Furthermore, MSR ensures that all of its operations have a fully-fledged Emergency Response Team on site and that it is available 24/7. The team consists of trained and dedicated emergency response members, supported by the medical personnel who are equipped with emergency care equipment and highly trained in trauma. These teams assisted in providing emergency care and treatment to 184 community persons in 2018.



BLOOD DONATION

A blood donation campaign was launched at our NPMC and MTC operations on 19th December 2018 and resulted in 149 blood donors.

Throughout the year MSR continued to work closely with various Governmental health organizations such as the Dai Tu District Health Center, the Health Department of Dai Tu District, the National Institute of Occupational and Environment Health, Thai Nguyen Preventive Health Center and the Thai Nguyen Department of Health (DOH). Our Governmental interactions have proven effective in communicating medical information.



We are caring about our children

The well-being of children is an important marker of progress towards the attainment of the SDGs. Since they are not always visible in data and policies, dedicated efforts are required to make sure that no child is left behind in the implementation, monitoring and reporting of the SDG agenda.

Year	Number of children benefited from the MSR's program	Amount of money (million VND)
2016	2.790	157.467
2017	4.640	757.414
2018	2.975	164.966



FACILITIES FOR SCHOOLS PUPILS

With support by the MSR, an open library was built to provide nice, friendly reading space for nearly 500 pupils of Phuc Linh secondary school.

In another activity mobilised by the Association for Child Protection and people with disabilities, the company delivered 20 sets of bunk beds with mattresses, 10 wardrobes and 5 mini fridges to Lung Luong secondary boarding school in Vo Nhai district, Thai Nguyen province, where there are 200 H'Mong ethnic pupils and majority of them are living in poor condition.

TRAINING/ AWARENESS RAISING FOR PUPILS

In response to the national campaign launched by the National Traffic Safety Steering Committee, the NPMC joined Dai Tu and Ha Thuong police to organize an awareness raising propaganda on traffic safety for over 400 pupils in Ha Thuong secondary school and donated 50 helmets for the pupils.

On the World Environment Day, the company organized a communication session to raise awareness for more than 300 pupils of Tan Linh secondary school on environmental protection and waste management. We also donated 6 mobile trash bins to the school and planted trees on the school playgrounds together with the pupils.

CARING FOR THE POOR/ DISADVANTAGED PUPILS

Poor children are always among the most vulnerable groups. Every year MSR provides significant resources for poor children through a variety forms of support such as sponsor for the Mid-Autumn festival, contributing to the Children's fund at provincial and district level, supplying facilities/ equipment, bicycles, improving accommodation condition, scholarships or livelihood models for orphans, etc.

Contributing to the Children's fund supplying studying facilities, bicycles, improving housing condition, scholarship for poor children

A nice, friendly reading space for nearly 500 students of Phuc Linh secondary school.

Tet Gifts for disadvantaged students from My Yen Ban Ngoai and Phuc Linh communes, Dai Tu district

Facilities (mattresses, wardrobes and fridges) to Lung Luong secondary school where there are 200 H'Mong ethnic students

Helping orphans to generate income through husbandry

Awareness raising for more than 300 students of Tan Linh secondary school on environmental protection and waste management

Promotion on traffic safety for over 400 students in Ha Thuong secondary school and 50 helmets donated for the students.



7 orphaned children were supported on accommodation improvement, health care and micro-income generation models

Ngo Khanh Linh- aged 14, is the eldest girl of 2 other children in a particularly poor family in Hung Son town. Her father, Mr. Ngo Ngoc Hai is a single-parent without stable income due to his poor health condition. Four of them lived in a 15m2 temporary house which was destroyed during a heavy storm. Despite of that, all the children achieved good academic results. Khanh Linh even won the 2nd prize in the district Physics and Science contest. Learning about the case, the MSR Community Liaison team joined with Dai Tu Red Cross in the housing program to support Linh and his family to build a new house.

Dinh Thanh Trung and Nguyen Thuy Hang are two orphaned secondary pupils in Cat Ne. They were born by poor, single-moms who both died of serious diseases in the same year (2018). Though being offered to help to enroll in the district boarding schools or vocational schools, Trung and Hang wished to complete their secondary education at their local school. After some visits and consultation, the Community Liaison team proposed to support them with a micro income-generation model, which is a chicken raising project. MSR supplied them with dozens of chickens and funds to build chicken coop and purchase chicken gran. The team also mobilised the local mass organizations (Women union and DoLISA staff) to support the children.

Trinh Huyen Trang and Trinh Phuong Quynh are orphaned sisters who both suffer from thalassaemia disease (white blood). They were living with their grand-parents in Ha Thuong commune. Despite the serious disease (they have to go to hospital every 1-2 months for blood transfusions), they were both studious and strive to learn further. The company have supported them via a scholarship and also regular visits and update their condition.



Linh's family receiving fund from MSR representative for house improvement



The two orphaned pupils in Cat Ne: Dinh Thanh Trung (left) and Nguyen Thuy Hang (right)



Huyen Trang receiving scholarship from the MSR representatives



Making our contribution more inclusive

SHOWING GRATITUDE TO MERITORIOUS PEOPLE

Giving gifts and contributing to the Fund for war veterans and Agent Orange victims of 4 affected communes.



The "915 military Company" is well-known for their great sacrifice during the American war time. 60 youth volunteers of the "915 Military Company" lost their lives in a bombing on the Christmas 1972 when they were helping with transportation of food and weapons from Thai Nguyen to the Southern battlefield. Many of the youth volunteers are from Dai Tu district but only five were lucky people to survive. At the end of the lunar year 2018, the Community Liaison team joined Thai Nguyen TV partner to visit families of those 5 former youth volunteers and families of 5 martyrs in Dai Tu district. The team visited and delivered gifts to each family and sponsored a Gathering party for the people to catch up and recall their memories.



144

MSR always set good examples among enterprises in Thai Nguyen province in social responsibilities performance. The company actively participated in a wide range of social programs launched by authorities, agencies or mass organizations at all levels.



145



Focus
2019



- 1 Support the construction of standard latrines for schools in the neighbouring communities
- 2 Assist in the establishment of outdoor reading spaces for some local schools in order to meet the school national standards;
- 3 Commence the long-term water supply scheme in partnership with the World Bank's clean water project for Thai Nguyen province;
- 4 Continue with the Rural Environmental & Sanitation Project, by providing bio-water filter tanks and building hygienic latrines for poor / financially challenged households;
- 5 Further develop the agricultural services models such as VietGap for tea, vegetables, fruits and safe animal breeding & husbandry
- 6 Support vulnerable groups including poor women and maintain the economic restoration fund;
- 7 Further improve the performance and capacity of the local supply groups and companies;
- 8 Actively participate in charitable and social activities in Dai Tu district and Thai Nguyen province

ABBREVIATIONS

AGM	Annual General Meeting	MTC	Masan Tungsten Company
AGME	The Association of Geology and Minerals of Vietnam	MTI	Medical Treatment Injury
APT	Ammonium Paratungstate	mtu	Metric tonne unit
BoD	Board of Directors	NGO	Non-government organization
BSS	Business Shared Services	NHTCM	Nui Phao -H.C. Starck Tungsten Chemicals Manufacturing
BTO	Blue Tungsten Oxide	NPM/NPMC	Nui Phao Mining Company
CDP	Community Development Plan	NTP-NRD	National Target Program on New Rural Development
CEO	Chief Executive Officer	NWR	Non-Work Related
CFO	Chief Finance Officer	OH	Occupational Hygiene
CHESS	Community, Health, Environment, Safety, Sustainability	OPEC	Organization of Petroleum Exporting Countries
CSI	Corporate Sustainability Index	OTC	Oxide Tailing Cell
CSR	Corporate Social Responsibility	PAPs	Project Affected People
DOIT	Department of Industry and Trade	PCDP	Public Consultation and Dissemination Plan
DoLISA	Department of Labour, Invalids and Social Affairs	PDR	People's Democratic Republic
DOST	Department of Science & Technology	PPC	Provincial People's Committee
DPC	District People's Committee	PPP	Public Private Partnerships (PPP)
DST	Department of Science & Technology	PRA	Participatory Rural Appraisal
EC	Electro-chromic	PTP	Pit Transfer Pond
EIA	Environmental Impact Assessment	RAP	Resettlement Action Plan
ENV	Environment	RMI	Responsible Minerals Initiative
ERD	Economic Restoration Development	SCM	Supply Chain Management
FAI	First Aid Injury	SDGs	Sustainable Development Goals
FC	Flotation cell	ST	Sodium Tungsten
GHG	Greenhouse Gas	STC	Sulphur Tailing Cell
GJ	Gigajoule	STC	Sulfur Tailing Cell
GRDP	Gross Regional Domestic Product	TC	Tungsten Concentrate
GRI	Global Reporting Initiative	TNTI	Thai Nguyen Trading and Investment Company Limited
HNX	Hanoi Stock Exchange	TPA	Tonnes per annum
HR	Human Resources	TRIFR	Total Recordable Injury Frequency Rate
HSS	Health, Safety, Security	TSF	Tailings Storage Facility
ICMM	International Council on Mining and Metals	TUAF	Thai Nguyen University of Agriculture and Forestry
IFC	International Finance Corporation	UFU	Institute for Independent Environmental Affairs- Germany
ITIA	International Tungsten Industry Association	UNGC	United Nations Global Compact
KPI	Key Performance Indicator	UPCOM	Unlisted Public Company Market
LCD	Liquid Crystal Display	US/ USA	The United States of America
LTI	Lost-Time-Injury	VAGME	Vietnam Business Association of Geology and Minerals
LTIFR	Lost-Time-Injury Frequency Rate	VAS	Vietnamese Accounting Standards
M&G	Mining & Geology	VBSDC	Vietnamese Business Council for Sustainable Development
MAINT	Maintenance	VCCI	Vietnam Chamber of Commerce and Industry
MDGs	Millennium Development Goals	VietGAP	Vietnamese Good Agricultural Practices
MIMS	Masan Integrated Management System	WHA	waste high arsenic
MOIT	Ministry of Industry and Commerce	WHIMS	Wet High Intensity Magnetic Separation
MoNRE	Ministry of Natural Resources and Environment	WHS	waste high sulphur
MPI	Ministry of Planning and Investment	WWTP	Wastewater Treatment Plant
MRTN	Masan Thai Nguyen Resources Company Limited	YTO	Yellow Tungsten Oxide

GRI CONTENT INDEX

Indicator Code	Disclosures	Content in Sustainability Report 2017	Page
GRI 102: General Disclosures 2016			
Organizational Profile			
102-1	Name of the organization	A journey to be a leading tungsten producer	14
102-2	Activities, brands, products, and services	Our products Tungsten chemical production	18 22
102-3	Location of headquarters	A journey to be a leading tungsten producer	14
102-4	Location of operations	MSR flagship assets	16
102-5	Ownership and legal form	A journey to be a leading tungsten producer	14
102-6	Markets served	Moving beyond the borders as a global player	78
102-7	Scale of the organization	Maintaining a well-engaged workforce	86
102-8	Information on employees and other workers	Maintaining a well-engaged workforce	86
102-9	Supply chain	Solid base deliverables in production and SCM	80
102-10	Significant changes to the organization and its supply chain	Improved Sustainability Governance Structure A realistic model of further downstream integration Maintaining a well-engaged workforce	52 76 86
102-11	Precautionary Principle or approach	Masan Resources' executive strategies Masan Resources' midterm strategies Committed leadership Integrated framework national and international	38 39 46 48
102-13	Membership of associations	Committed leadership Annually reviewed mapping stakeholders' expectations	46 68





Strategy			
102-14	Statement from senior decision-maker	Message from CEO Committed Leadership	6 46
102-15	Key impacts, risks, and opportunities	Most material topics in 2018 Annually reviewed risk management	56 54
Ethics and integrity			
102-16	Values, principles, standards, and norms of behavior	Committed leadership Integrated framework national and international	46 48
102-17	Mechanisms for advice and concerns about ethics	Realizing a real participation through on-going PCDP Environment transparency: Beyond compliance	63 66
Governance			
102-18	Governance structure	Management structure	24
102-19	Delegating authority	Management structure Improved sustainability governance structure	24 52
102-20	Executive-level responsibility for economic, environmental, and social topics	Improved sustainability governance structure	52
102-21	Consulting stakeholders on economic, environmental, and social topics	Annually reviewed mapping stakeholders' expectations Most material topics in 2018	68 56
102-22	Composition of the highest governance body and its committees	Management structure	30
102-23	Chair of the highest governance body	Management structure	30
102-24	Nominating and selecting the highest governance body	Management structure	30
102-25	Conflicts of interest	Realizing a real participation through on-going PCDP Most material topics in 2018	62 56

102-26	Role of highest governance body in setting purpose, values, and strategy	Message from Management team Committed leadership	6 46
102-27	Collective knowledge of highest governance body	Management structure of NMPM Management structure of MTC	28 30
102-28	Evaluating the highest governance body's performance	Most material topics in 2018 Annually reviewed mapping stakeholders' expectations	56 68
102-29	Identifying and managing economic, environmental, and social impacts	Most material topics in 2018 Making transparency key approach to oversight sustainability Keep going our business development Sustainable growth for our communities	56 59 73 131
102-30	Effectiveness of risk management processes	Annually reviewed risk management	54
102-31	Review of economic, environmental, and social topics	Making transparency key approach to oversight sustainability Keep going our business development Sustainable growth for our communities	59 73 131
102-32	Highest governance body's role in sustainability reporting	Improved sustainability governance structure	52
102-33	Communicating critical concerns	Most material topics in 2018	56
102-34	Nature and total number of critical concerns	Realizing a real participation through on-going PCDP	62
Stakeholder engagement			
102-40	List of stakeholder groups	Annually reviewed mapping stakeholders' expectations	68
102-41	Collective bargaining agreements	Annually reviewed mapping stakeholders' expectations	68
102-42	Identifying and selecting stakeholders	Annually reviewed mapping stakeholders' expectations	68
102-43	Approach to stakeholder engagement	Realizing a real participation through on-going PCDP	62
102-44	Key topics and concerns raised	Realizing a real participation through on-going PCDP Annually reviewed mapping stakeholders' expectations	62 68





Reporting Practice			
102-45	Entities included in the consolidated financial statements	Not reporting	
102-46	Defining report content and topic Boundaries	About this report	5
102-47	List of material topics	Most material topics in 2018	56
102-48	Restatements of information	Most material topics in 2018	56
102-49	Changes in reporting	About this report	5
102-50	Reporting period	About this report	5
102-51	Date of most recent report	About this report	5
102-52	Reporting cycle	About this report	5
102-53	Contact point for questions regarding the report	Scope and boundaries	5
102-54	Claims of reporting in accordance with the GRI Standards	About this report	5
102-55	GRI content index	GRI content Index	147
102-56	External assurance	Environmental transparency: beyond compliance Annually reviewed mapping stakeholders' expectation	66 68
GRI 103: Management approach			
103-1	Explanation of the material topic and its Boundary	Most material topics in 2018	56
103-2	The management approach and its components	Integrated framework national and international Improved sustainability governance structure	48 52
103-3	Evaluation of the management approach	Integrated framework national and international Improved sustainability governance structure	48 52

GRI 200: ECONOMIC STANDARDS			
GRI 201: Economic performance			
201-1	Direct economic value generated and distributed	Keep going our business development	72
GRI 202: Market Presence			
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	Maintaining well-engaged workforce	86
GRI 203: Indirect Economic Impacts			
203-1	Infrastructure investments and services supported	A realistic model of further downstream integration	76
203-2	Significant indirect economic impacts	Sustainable growth for our communities	130
GRI 204: Procurement Practices			
204-1	Proportion of spending on local suppliers	Solid base deliverables in production and SCM	80
GRI 300: ENVIRONMENTAL STANDARDS			
GRI 301: Materials			
301-1	Materials used by weight or volume	Material management	116
301-2	Recycled input materials used	Material management	116
GRI 302: Energy			
302-1	Energy consumption within the organization	Energy and green gas emissions	120
302-4	Reduction of energy consumption	Energy and green gas emissions	120
302-5	Reductions in energy requirements of products and services	Energy and green gas emissions Keep going our business development	120 72





GRI 303: Water			
303-1	Water withdrawal by source	Water resources and waste water management	122
303-2	Water sources significantly affected by withdrawal of water	Not reporting	
303-3	Water recycled and reused	Water resources and waste water management	122
GRI 305: Emissions			
305-1	Direct (Scope 1) GHG emissions	Energy and greenhouse gas emission	120
305-2	Energy indirect (Scope 2) GHG emissions	Energy and greenhouse gas emission	120
305-3	Other indirect (Scope 3) GHG emissions	Not reporting	
305-4	GHG emissions intensity	Energy and greenhouse gas emission	120
305-5	Reduction of GHG emissions	Waste management	118
305-6	Emissions of ozone-depleting substances (ODS)	Energy and greenhouse gas emission	120
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Not reporting	
GRI 306: Effluents and Waste			
306-1	Water discharge by quality and destination	Water resources and waste water management	122
306-2	Waste by type and disposal method	Waste management	118
306-3	Significant spills	Not reporting	
306-4	Transport of hazardous waste	Waste management	118
306-5	Water bodies affected by water discharges and/or runoff	Not reporting	

GRI 307: Environmental Compliance			
307-1	Non-compliance with environmental laws and regulations	Environment transparency: beyond compliance	66
GRI 308: Supplier Environmental Assessment			
308-1	New suppliers that were screened using environmental criteria	Not reporting	
GRI 400: SOCIAL STANDARDS			
GRI 401: Employment			
401-3	Parental leave	Not reporting	
GRI 403: Occupational Health and Safety			
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Safety regulatory compliance	106
403-3	Workers with high incidence or high risk of diseases related to their occupation	Ensuring a healthy workforce	94
403-4	Health and safety topics covered in formal agreements with trade unions	Not reporting	
GRI 404: Training and Education			
404-1	Average hours of training per year per employee	Consolidating a mindset of a circular economy	90
404-2	Programs for upgrading employee skills and transition assistance programs	Consolidating a mindset of a circular economy	90
401-3	Percentage of employees receiving regular performance and career development reviews	Consolidating a mindset of a circular economy	90
GRI 405: Diversity and Equal Opportunity			
405-1	Diversity of governance bodies and employees	Maintaining well-engaged workforce	86





GRI 406: Non-discrimination			
406-1	Incidents of discrimination and corrective actions taken	Not reporting	
GRI 408: Child Labor			
408-1	Operations and suppliers at significant risk for incidents of child labor	Not reporting	
GRI 409: Freedom of Association			
409-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Not reporting	
GRI 410: Security Practices			
410-1	Security personnel trained in human rights policies or procedures	Not reporting	
GRI 412: Human Rights Assessment			
412-1	Operations that have been subject to human rights reviews or impact assessments	Not reporting	
412-2	Employee training on human rights policies or procedures	Not reporting	
GRI 413: Local Communities			
413-1	Operations with local community engagement, impact assessments, and development programs	Making transparency key approach to oversight sustainability	59
413-2	Operations with significant actual and potential negative impacts on local communities	Making transparency key approach to oversight sustainability Sustainable growth for our communities	59 131
GRI 415: Public Policy			
415-1	Political contributions	Sustainable growth for our communities	131



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