



THE
NICKEL INITIATIVE
2019

SHAPING TOMORROW, TOGETHER

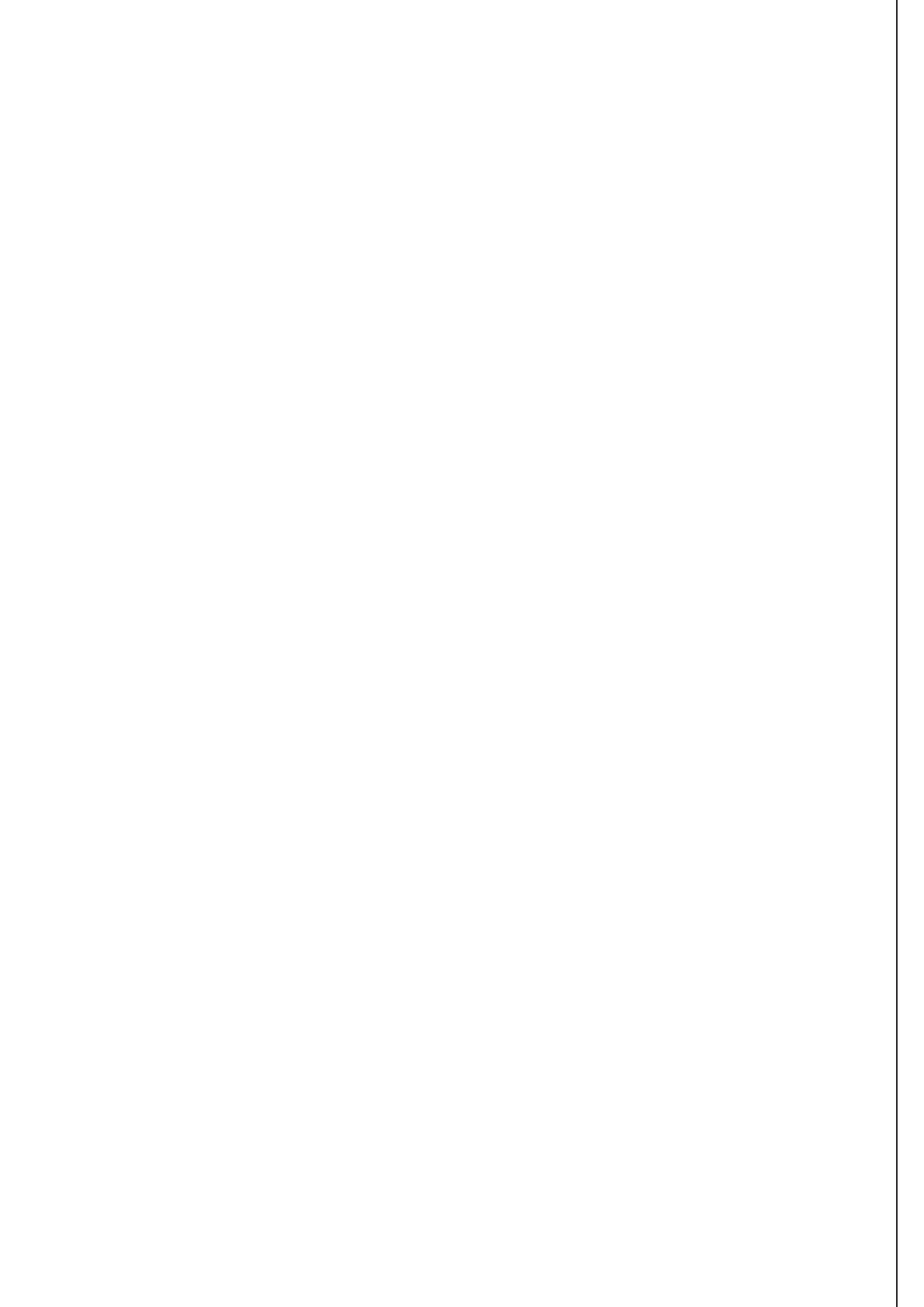
SUMMARY REPORT

Convened by the



**PHILIPPINE NICKEL
INDUSTRY ASSOCIATION**

Shangri-la at the Fort, Taguig City
March 18-19, 2019



FOREWORD

On March 18-19, 2019, PNIA staged a milestone event not just for the Association but for the industry. This became the Philippines' premier event to tackle cross-cutting issues of the nickel supply chain.

PNIA is most proud of the fact that the Nickel Initiative also became a significant tool to discover, collaborate, and innovate towards a strategic direction for the Philippine Nickel Industry, paving the way for the creation of a nickel industry development road-map.

The road-map will set a strategic direction for the growth of the nickel industry. This will lay out a predictable business environment, industry-specific policy support, and fiscal incentive schemes that enhance the business climate, stabilize the landscape, and bring more confidence to investors.

However, this Initiative and the Nickel Industry road-map is only the beginning for PNIA and for the entire nickel industry. Much work is yet to be done, but the industry remains optimistic. After all, nickel's potential as an agent for change and progress cannot be underestimated.

Taking off from our theme 'Shaping Tomorrow, Together', PNIA envisions the Association as the people steering the Industry towards the future - a future where we are globally competitive, socially responsible, and a key driver of the country's economic progress.

This report is a comprehensive outline of the events that transpired, key points tackled, and agreements made in those two days. But more than that, this report is the first step towards concretizing our plan to move the Industry forward, together.





Message from the Chairman Emeritus

Clarence J. Pimentel, Jr.

The Nickel Initiative 2019
Conference Chair

When the Philippine Nickel Industry Association thought of this Initiative, we asked ourselves: how can we go beyond the usual conversation? Not just regionally, but globally. We wanted to broaden the discourse – about linkages, opportunities, and challenges in the nickel value chain.

As you can see, we dreamt big dreams. For our industry, for the industries reliant on nickel, and for the future.

And so, here we are today.

I am beyond words seeing this Initiative realized. This months-long endeavor is the beginning of a journey – toward a nickel industry that is globally competitive and responsible driver of inclusive and sustainable growth. A business event that we are proud to claim as PNIA's flagship project.

We might not often see nickel but it is an integral part of our daily lives. Nickel is used in about 300,000 products for consumer, industrial, military, transportation, aerospace, marine, medical, and architectural applications, among others.

These applications only underscore how so many industries rely on nickel as a key production input.

So we called for collaboration and reached out.

Our aim is to be more inclusive – that's why we have with us here our partners in both the government and private sector. With the Initiative, our goal is to foster collaboration and enable partnerships. We want to

promote businesses, investments, and projects that are responsible and sustainable.

We are grateful for the support of the stakeholders who embraced the advocacy to work together for the development of the nickel supply chain industry.

To our partners – know that The Nickel Initiative 2019 is only the beginning of continued collaboration. We are very excited to work with you in the long-term.

- Thank you to our event partners: the Electric Vehicle Association of the Philippines (EVAP) and the European Chamber of Commerce of the Philippines. Your support of The Nickel Initiative until today is much appreciated.
- Thank you to our co-convenors of the Business and Investment Round Table – the Philippine Chamber of Commerce and Industry, CRU Consulting Group, and the International Nickel Study Group.
- Thank you to the University of the Philippines Diliman – Department of Mining, Metallurgical, and Materials Engineering – for helping us stage nickel workshops for engineering students – the next generation of nickel industry professionals.

On behalf of the entire Philippine Nickel Industry Association, I wish to extend our appreciation to our sponsors led by Pilipinas Shell, and the people behind Civic Merchandise, Volvo, and Nickelbase, Inc. We

also wish to acknowledge the support of Ningbo Lygend, Komatsu Maxima, Kobelco, Northern Star Energy Corp., Monark-CAT, Cagdianao Konstruct Development, Carson Shipping, Queens Mineral Transport and Trading, and MRMU Earth Movers.

Lastly, we are thankful to everyone who has taken the time to be part of the Nickel Initiative whether as part of our distinguished panel of speakers, as our guest, or as delegate. It's an honor and a real joy for us to see you all here. Thank you.

Ladies and gentlemen,

On behalf of the PNIA Board and the entire team, we are all happy to have brought to you this event. Your support, participation, and enthusiasm are key to creating the future we hope for – again, for our industry, for the industries reliant on nickel, and for our country



Message from the Chairman

Isidro C. Alcantara, Jr.

Chairman, Philippine Nickel Industry Association
President and CEO of Marcventures Holdings, Inc.

It is my honor and pleasure to welcome you all to the Philippine Nickel Industry Association or PNIA's premiere event, The Nickel Initiative of 2019.

As you can see from the theme, our event is future forward. Trends indicate that a growing global population and an accelerating economy will increase the demand for minerals, including nickel. This means the initiative comes at a time of great opportunity for the Nickel Mining Industry in the Philippines and industries reliant on Nickel as a key resource.

But it was not something we thought of just overnight. It is the product of months of hard work and extensive research. It is the fruit of our young Association's collective hopes and dreams for the industry.

We think of this not as a mere mining event, but as a platform for discussion, collaboration, and partnership between industries. We believe that the Nickel Industry and all industries using nickel as a key resource will play a significant role in pushing the country towards a sustainable future.

To give everyone context, I would like to introduce the Association. PNIA was formed in 2012 for two (2) reasons: (1) to serve as a voice for the Nickel Industry and; (2) to promote responsible and sustainable development of the Philippine Nickel Industry in parallel with the vision of the government as guided by the DENR.

Our members have endeavored to adopt best practices and to comply with regulations especially restoring and enhancing the environment even as we conduct mining. Most important are our efforts to

initiate and provide livelihood opportunities where normally there are none in the hinterlands where we operate.

We hope that the Philippine Nickel Industry will be recognized as globally competitive, a significant contributor to the Philippine economy, and a model for responsible and sustainable mining operations. We believe we are getting there. Our companies have helped transformed our host communities into first class municipalities.

By now, you must all be well aware that nickel is indeed in our everyday lives. It is in the small things we tend to overlook, such as the cutlery we use to eat, the coins we employ to pay, and the cellphones and laptops we hold to connect. It is also in the "macro": transport, aerospace, infrastructure and environmental protection equipment. You can even count nickel in various medical applications that save lives.

With all of this information laid out before the public, we in the nickel sector strongly believe in the noble purpose of our industry. We are engaged in an activity that provides a myriad of opportunities to sustain life and prosper in the modern world.

Through this effort, we hope to foster a mutually beneficial and economically sound business environment that is attractive to investors and other stakeholders. And of course, it is our partnerships with key industries that will allow us to significantly share in the country's nation-building efforts.

Again, it is my honor and privilege to welcome everyone to the Nickel Initiative.



Message from the President

Atty. Dante R. Bravo

President, Philippine Nickel Industry Association
President of Global Ferronickel Holdings, Inc.

As the President of the Philippine Nickel Industry Association, it is my honor and privilege to welcome you to the Nickel Initiative where we have gathered a diverse set of stakeholders, leaders, and industry titans.

The Nickel Initiative featured distinguished speakers and panelists from the government and private sector. These speakers, experts in their respective fields have spoken about the potential of the industry and how we can positively position the Philippines as a global competitor.

Since PNIA's formation in 2012, our goal has been to champion the industry in a way that is both inclusive and progressive. We have endeavored to achieve this goal in little bursts over the course of many months. We participated in industry forums, pushed for policy advocacies, and created information drives to educate our stakeholders.

The Nickel Initiative is the culmination of these efforts. It was borne out of the desire to explore a strategic approach to the industry's contribution to sustainable economic growth. And how do we do this?

Collaboration. Partnership. And Progress.

Our foundation lies in mining, but we want to expand the conversation. We want to promote the growth of businesses. So with this conference, we

are supporting not just the nickel industry, but also the industries reliant on the nickel supply chain.

We miners – whether in the Philippines or elsewhere in the world – work in a noble industry. We are engaged in an activity that provides myriads of opportunities to sustain life and to prosper in the modern world.

Nowhere is this more apparent than in the communities where we operate. Mining and responsibility go hand in hand. Our efforts are in parallel with the government. We touch the lives of our host communities by augmenting government initiatives through our Social Development and Management Program or SDMP. In addition to this, we want our communities to thrive in the long-term by making mining environmentally sustainable, as represented in our Annual Environmental Protection and Enhancement Programs or AEPEP.

We are blessed with abundant nickel resources. About 1/3 of the Philippines' total land area, or about 9 million hectares, is identified as having high mineral potential. How do we prepare for the global stage? We need to set a strategic direction in preparing the local industry towards globalization. And to concretize this direction, we believe it is time to explore the development of a Philippine Nickel Industry Road map and champion collaboration with and among nickel end-user industries. We appreciate the efforts of government in reaching out to the mining sector and ensure terms of government policies are fully complied. But given

the vast potential of our nickel mines, we believe there is no better time than now to aspire for something greater.

So far, we've been successful in developing our upstream industries, seen in the ongoing operations of major nickel mines today. At this point though, the Philippines has remained a raw ore exporter, but the downstream industry can boost the economy tremendously. We are ripe to scale up and emulate the practices started by other nickel-producing countries.

Mining is a long-term business, so the effects of market uncertainties, including policies contingent on these conditions, can sometimes take years to manifest and even longer to reverse. Our operations are highly dependent on the economics of price and demand, which in turn are also dictated by policy.

Hence, this road-map must lay out industry-specific policy support and fiscal incentive schemes that enhance the business climate, stabilize the landscape, and bring confidence to investors. It must discuss the full integration of the upstream, midstream, and downstream industries of nickel in the Philippines, from mining to manufacturing. This is one of the strategies we can use to persuade access to capital. The goal here is to enhance the nickel value chain and increase investor interest in nickel and its various applications and technologies.

Generally, we see concrete steps toward this road-map would be the development of a feasibility concept paper and policy recommendations to successfully attain financial viability. We will look at evaluating available reserves, technologies, community development practices, and existing programs that support comprehensive and responsible usage of our natural resources. From here, we can map out opportunities and challenges, then ably identify necessary interventions and growth requirements. Information-sharing and coordination among key industry players are critical to gauging the collective performance of the different industry segments.

This road-map must also highlight linkages with our allied industries, such as the e-vehicle battery sector and other partner sectors. We hope this can institutionalize an appropriate mechanism moving toward industry integration.

One of the highlights of this Initiative was the Business and Investment Roundtable, where we gathered key stakeholders to tackle cross-cutting issues across industries in the nickel supply chain, and identify the potential areas for collaboration.

To this end, PNIA has committed to establish and be part of a technical working group to commence work on this momentous endeavor. As a leader in the sector, PNIA will manage coordination with key partners and ensure compliance with identified targets. Moreover, we commit to actively monitor opportunities and advocate for the viability of the industry.

Once this road-map has been developed in coordination with our stakeholder industries, the academe, and government agencies like NEDA and PEZA, we hope to present this plan to the Department of Trade and Industry, Bureau of Investments and the Department of Environment and Natural Resources (DENR).

By doing so, we take proactive measures to maximize the potential of the entire nickel value chain in contributing to the country's inclusive economic growth thrust. It is our hope that through The Nickel Initiative 2019, we could initiate meaningful collaborations and partnerships in pursuit of these goals, mutual interests, and nation building.

This is only the beginning for PNIA and for the industry. There is still much work to be done. With our partners in the private sector and government, we hope to be able to light the path towards creating sustainable economic progress.

Shared value is recognizing that mining does not exist in a vacuum. The nickel value chain relies on multiple stakeholders to process the raw material and make it useful to human existence. When these multiple industries collaborate, we share in the country's nation-building efforts.

In other words, what we do moving forward matters – to the Filipino people, and to our country.

On behalf of the Officers and members of the Philippine Nickel Industry Association, I would like to once again welcome everyone to the Nickel Initiative.

Together, let us make the future, today.

Thank you very much!

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The Nickel Initiative 2019 Report: A Summary



The **Nickel Initiative 2019** is the premiere business event in the Philippines that tackles issues that cut across multiple industries in the nickel supply chain, its inter-relationships, and potential areas for collaboration. Featured industries include companies involved in exploring, extracting, and processing nickel as well as businesses that utilize nickel as a key resource, such as e-vehicle, stainless steel, transportation, and infrastructure. The event was held on 18-19 March 2019 at the Shangri-la at the Fort in Taguig City.

The event was convened by the Philippine Nickel Industry Association (PNIA) with the support of the Electric Vehicle Association of the Philippines (EVAP), European Chamber of Commerce of the Philippines (ECCP), International Nickel Study Group (INSG), CRU Consulting Group, and the University of the Philippines Diliman – Department of Mining, Metallurgical, and Materials Engineering as university partner.

Gathering **359 attendees from the public, private, and academic sectors**, The Nickel Initiative 2019 has enabled stakeholders to discuss issues, challenges and recommendations toward nickel industry development. Delegates have benefited from the wisdom of and insights shared by a panel of reputable experts, champions, and advocates from nickel industry, government, and businesses across the country and the world. **The Honorable Speaker of the House of Representatives, Gloria Macapagal Arroyo**, together with the country's Environment and Natural Resources **Secretary Roy A. Cimatu** and one of the Philippines' top and most respected economists, **Dr. Bernardo Villegas**, led the line-up of resource persons. A number of speakers flew from outside the Philippines and provided international perspective during the event's discussions. This included **Mr. Paul White, Secretary General of INSG**, an independent, autonomous inter-government organization promoting the interests of nickel-producing and nickel-using countries.



Discussion Outcomes

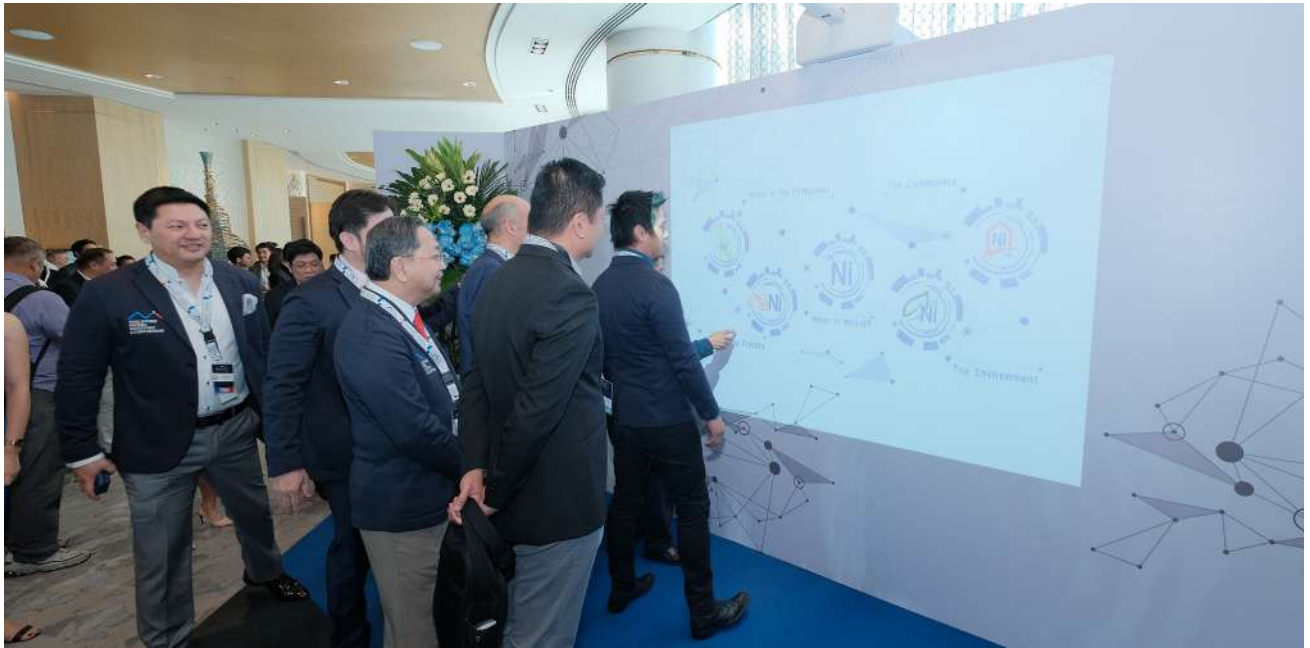
The Nickel Initiative 2019 reignited the interests of the academe on the essential linkage between theory and practice by understanding the operations of and opportunities in nickel mining companies. The Nickel Workshops for young professionals and university students served as a platform to discuss convergence between relevant researches on nickel mining and usage vis-à-vis issues and developments in the energy sector, on environment protection, and on community relations management. PNIA hopes that its partnership with the academe will be deepened further through future initiatives.

The need to develop a nickel industry road-map was put forward; a road-map that will allow the industry to charter its path, understand the ecosystem where it is part of, map out opportunities and challenges, and identify interventions and growth requirements. Delegates and resource persons agreed that such endeavor required not only collaboration among stakeholders but also openness and dialogues on policy issues and developments impacting the industry.

As the industry explores the many possibilities for business development and investments in the nickel supply chain, the Nickel Initiative 2019 has also underscored the **importance of ensuring sustainability in the nickel mining industry**. Specific measures to incorporate sustainability in mining companies' operations were identified, including the development of and abiding with industry- and company-specific sustainability code of conduct.

The Nickel Initiative 2019 is only the beginning of PNIA's journey towards the development of the nickel industry supply chain. It has resulted in concrete, forward-looking partnerships with stakeholders essential to the nickel sector's development. The **signed Memoranda of Understanding (MOU) with EVAP and the ECCP** identified initiatives that will be rolled-out in the coming months. These will cover conduct of joint researches to support progress of the nickel sector, development of a value chain road-map, enhancement of corporate social responsibility programs, and deepening of cooperation on policy formulation and promotion.

ABOUT THE EVENT



The **Nickel Initiative 2019** is the premiere business event in the Philippines that tackles issues that cut across multiple industries involved in the nickel supply chain, its inter-relationships, and potential areas for collaboration. Featured industries include companies involved in exploring, extracting, and processing nickel as well as businesses that utilize nickel as a key resource, such as e-vehicle, stainless steel, transportation, and infrastructure. The event was held on 18-19 March 2019 at the Shangri-la at the Fort in Taguig City.

The Nickel Initiative 2019 was convened with the following objectives:

1. Enable discussions and identification of cross-cutting issues impacting nickel and other industries critical to economic and sustainable development.
2. Identify and pursue potential business and development opportunities for key industries in the Philippines, including nickel and other mineral industries, infrastructure, and e-vehicle
3. Open doors for improved networking and collaboration among stakeholders and industry players locally and abroad.

Guided by the theme, *Shaping Tomorrow, Together*, the Nickel Initiative 2019 hosted five (5) activities to address the varied interests and objectives of a wide range of attendees.

1. **EXHIBIT.** A visual treat especially curated to provide the audience an interactive way to know more about the country's rich nickel resource and its application, and discover interesting facts about different industries and businesses.

2. **WORKSHOPS.** Students from the University of the Philippines, University of Santo Tomas, and De la Salle University underwent workshops to enhance their knowledge and understanding about nickel and how this element plays a critical role in many industries of the future.
3. **BUSINESS & INVESTMENT ROUND-TABLE.** An exclusive opportunity where local and international business leaders, industry champions, and policy makers discussed the imperatives to driving nickel industry development.
4. **WELCOME RECEPTION.** An evening that provided opportunities for guests and delegates to network and explore business opportunities and joint projects with stakeholders from multiple sectors. It also served as a socials night to welcome guests and delegates from the Philippines and abroad.
5. **CONFERENCE DAY.** A one-day program that saw some of the Asian Region's top business leaders, renowned international speakers, young innovators, and most exciting thought leaders in one stage. The resource persons shared their views and recommendations on the issues and trends driving the state of nickel supply chain locally and across the world.

Event Partners

The event was convened by the Philippine Nickel Industry Association (PNIA) with the support of its partners:

Electric Vehicle Association of the Philippines

EVAP was established in 2009 and is comprised of 54 active members and over 500 industry partners. The association envisions a nation wherein the use of electric vehicles is highly promoted, encouraged and supported by its government and the society in order to develop a transportation landscape that is one with the environment ecologically and economically.



European Chamber of Commerce of the Philippines

ECCP is a bilateral foreign chamber that promotes European business interests in the Philippines and Philippine interests in Europe. It has nearly 800 members. The chamber provides wide variety of services to its member companies, individuals and organizations and strives to make its members' viewpoint heard on economic and business issues, legislative measures and administrative regulations. The ECCP identifies business opportunities, facilitates business contacts, and provides market intelligence research for European and Philippine companies alike.



CRU Consulting Group

Established in 1969, CRU offers unrivaled business intelligence on the global metals, mining and fertilizer industries through market analysis, price assessments, consultancy and events. Headquartered in London, CRU has offices in Beijing, Shanghai, Sydney, Mumbai, Singapore, the United States, Chile, and Brazil.





International Nickel Study Group

INSG is an inter-government organization whose members are governments of nickel producing, consuming and trading countries or other intergovernmental organizations responsible for implementing international agreements. The body is established to “ensure enhanced international co-operation on issues concerning nickel, in particular by improving the information available on the international nickel economy and by providing a forum for intergovernmental consultations on Nickel.”

Member countries are Australia, Brazil, Cuba, European Union, Finland, France, Germany, Greece, Italy, Japan, Norway, Portugal, Russia, Sweden, and United Kingdom.



University of the Philippines Diliman - Department of Mining, Metallurgical, and Materials Engineering

UP Diliman – DMMME is a leading academic and research institution on mining, metallurgical, and materials engineering that employs multidisciplinary holistic approach for national and global progress. DMMME takes pride in molding the finest engineers who ensure quality, safety, and social responsibility of mining operations. One of its three programs is BS Mining Engineering.

Event Participation

The Nickel Initiative 2019 gathered 359 attendees from nickel mining companies, end-user (nickel-using) industries, business chambers and associations, the government, academe, and the media. Delegates and guests attended the event’s multiple activities which were spread across two days. The breakdown of attendees is as follows:

| SECTOR | INCLUSIONS | NUMBER |
|------------------------|--|------------|
| Nickel Mining Industry | PNIA board members, PNIA member companies and their delegates, paying and guest delegates from nickel/ mining companies and sponsors | 104 |
| Private Sector | Guest and paying delegates, speakers, and sponsors from various industries i.e., oil & gas, machineries, aeronautics, engineering, legal, and research | 82 |
| Government | Speakers, paying and guest delegates i.e., DENR, MGB, DTI, BOI, local government | 33 |
| Non-Profit | Guest and paying delegates from organizations such as Philippine Mining Club, EVAP, ECCP, CanCham, etc. | 17 |
| Academe | Workshop attendees from UP, UST, and DLSU | 68 |
| Media | National and local press | 55 |
| Total | | 359 |



Resource Persons and Guests

The 14th President of the Republic of the Philippines and former Honorable Speaker of the House of Representatives, Gloria Macapagal Arroyo, led the line-up of notable and distinguished panel of speakers who shared their views on the subject of nickel supply chain and innovation. Philippine Environment and Natural Resources Secretary Roy A. Cimatu served as guest of honor at the Welcome Reception, while one of the Philippines' top and most respected economists, Dr. Bernardo Villegas, served as closing keynote speaker and talked about the impact of the nickel mining to Philippine economy and sustainability.

Delegates of the Nickel Initiative 2019 also benefited from the international perspective brought in by the event's speakers from various parts of the world. Mr. Paul White, INSG Secretary General discussed the state of the global nickel industry. The other speakers who provided equally important insights were experts from the Tsingshan Holding Group, the largest stainless steel company in the world; nickel processing company Ningbo Lygend; nickel trader Glencore AG; and one of the most reputable think tanks on nickel commodity, the CRU Consulting Group.

Speakers from the Philippines added value to the discussions. Trade and Industry Undersecretary Rafaelita Aldaba and Board of Investments Asst. Secretary Felicitas Agoncillo Reyes discussed the government's thrust towards nickel industry development. Other speakers were EVAP President Edmund Araga, ECCP representative Atty. Dennis Quintero, engineered bamboo innovator Mr. Patrick Forlales, astrophysicist and space development advocate Dr. Rogel Sese, and R&D champion Dr. Richard Abendan from the USAID- Science, Technology, Research and Innovation for Development (STRIDE) Program.

Workshop resource persons included faculty members from the University of the Philippines Diliman – College of Mining, Metallurgical, and Materials Engineering (UP Diliman – DMMME) and officers of nickel mining companies. They provided the students and faculty members with an overview on the state, challenges, current programs, and opportunities in the nickel mining industry.

Day 1



NICKEL WORKSHOPS

Two sets of nickel workshops were held in parallel on 18 March 2019 at the Shangri-la at the Fort in Taguig City. The sessions were opened by Engr. Cesar F. Simbulan, Jr., PNIA Board Member and President of DMCI Mining Corporation (workshop 1) and Mr. Paul Tan of Carrascal Nickel Corporation (workshop 2). Students and faculty members from UP Diliman, University of Santo Tomas, and De La Salle University attended the workshops.

PROGRAM

DAY 1. Monday, 18 March 2019
Shangri-la at the Fort, Taguig City

| Time | Topics and Activities | |
|----------|---|---|
| | DAY 1 Opening | |
| 12:30 pm | Day 1 Registration | |
| 01:15 pm | Exhibit Opening | |
| | Workshop 1: Nickel and the Environment | Workshop 2: Nickel and Energy |
| 2:00 pm | Introduction | Introduction |
| 2:10 pm | Opening Message Engr. Cesar F. Simbulan, Jr. President DMCI Mining Corporation | Opening Message Mr. Paul Tan Special Assistant to the President for External Affairs, Carrascal Nickel Corporation |
| 2:15 pm | Research Presentation: Status of R&D on Mining and Environmental Issues Dr. Eligia D. Clemente Assistant Chair UP Diliman – DMMME | Research Presentation: Opportunities in Nickel R&D for Energy and Electronics Prof. Karlo Leandro D. Baladad Program Coordinator Metallurgical Engineering Program, UP Diliman – DMMME |
| 2:45 pm | Environment First: Sustainability in Nickel Mining Sites Mr. Ronald Asignacion Land Banking Manager Marcventures Mining and Development Corporation | The Future of E-Vehicles: Cleaner Vehicles for the Filipino Public Mr. Karl Lyndon B. Pacolor Secretary Electric Vehicle Association of the Philippines |
| 3:15 pm | Career Opportunities in the Nickel Industry Engr. Carlo A. Matilac Senior Vice President Global Ferronickel Holdings, Inc. | Building Relations with Mining Host Communities Mr. Jonathan Bañez Community Relations Officer Agata Mining Ventures, Inc. |
| 3:30 pm | Q&A | Q&A |
| 4:00 pm | Snacks/ Meet & Greet | Snacks/ Meet & Greet |
| 4:30 pm | Exhibit Tour | Exhibit Tour |

Workshop 1:

Nickel and the Environment

Opening Message

Engr. Cesar F. Simbulan, Jr.
President, DMCI Mining Corporation and Board Member, PNIA



After welcoming participants to the nickel workshops, Engr. Cesar Simbulan talked about the role of nickel in the modern economy.

Today's world continues to become more dependent on the nickel industry as more consumer and industrial products use nickel. As the demand for nickel continues to rise, it becomes more challenging for the present and future generation to meet these demands without compromising sustainability of resources.

Engr. Simbulan urged the youth to be more responsible and accountable in extracting minerals from the environment. He pointed out that accountability in extracting the earth's resources should be very high.

Engr. Simbulan believes the future is bright for the youth in the mining industry, saying that the demand is high not only in production but also in human resources. As the Philippines' next generation of leaders and professionals - the youth, he said, should hone their leadership skills and know the roles that they will fulfill in the industry.

"Leadership is not inherited. It needs to be cultivated," he said.



Research Presentation : R&D on Mining and Environmental Issues

Dr. Eligia D. Clemente
*Assistant Chair, Department
of Mining, Metallurgical, and
Materials Engineering
UP Diliman*

With the global community becoming more mindful on how products are produced and manufactured, continuous research and development is imperative especially in the mining industry.

Dr. Eligia Clemente, the Assistant Chair of U.P. Diliman – DMME and an adviser to the current administration on policy building in the mining industry, gave a preview on the ongoing areas of research funded by the government as well as more than 30 past and current researches on nickel specifically on mining technologies and environmental issues.

Although a lot of research have been done and are being done, according to Dr. Clemente, “The way forward is to do collaborative research with other local state universities with the goal of assisting the business community in addressing real-world problems - such as pollution (air, water, and soil), remediation (acidified water systems, siltation, etc.), new technologies (mineral processing, extractive technologies, etc.)” Other than research collaboration, the sharing of available research materials should also be encouraged among academic, private, and government agencies.

Dr. Clemente closed her presentation with a quote from Harry S. Truman, “It is amazing what you can accomplish if you do not care who gets the credit.”

“The way forward is to do collaborative research with other local state universities with the goal of assisting the business community in addressing real-world problems

Sustainability in Nickel Mining Sites

Mr. Ronald Asignacion
*Land Banking Manager,
Marcventures Mining and
Development Corporation*



Mr. Ronald Asignacion shared the story of Mang Roberto - an elementary school graduate turned Third Class Mechanic of Philmex Mining Corporation; a Model Employee awardee; 23 years in mining service; a responsible father to four children; and a loving husband to Lilia, a housekeeper. Mang Roberto's story is one of the many life-changing stories in communities that are changed by the nickel mining industry through its efforts to build community capacities.

At present, given the provisions of the Philippine Mining Act of 1995, 1.5% of the total operating cost of a mining operation is allocated to Social Development Management Program (SDMP) which empowers communities to take part in developing, implementing, and managing community development programs, projects, and activities in a manner consistent with the principles of sustainable development even after the life of mine. The SDMP focuses on HELPS: Health, Education, Livelihood, Public Utilities, and Socio-Cultural.

Mr. Asignacion describes some of the mining industry's initiatives in relation to the HELPS focus areas. According to him, HELPS promotes the responsible use of natural resources, builds the capacities of communities through access to formal and technical vocational education, and creates more competitive and diverse options for work which triggers economic development and investment towards education in the community.

"Behind a successful mine is a conscious effort to firstly look after the Planet (Environment) and People (Community) before looking for Profit," said Mr. Asignacion.

"Behind a successful mine is a conscious effort to firstly look after the Planet (Environment) and People (Community) before looking for Profit,"



Career Opportunities in the Nickel Mining Industry

Engr. Carlo A. Matilac
*Senior Vice President,
 Global Ferronickel Holdings, Inc.*

Being the 2nd largest nickel producer in the world, the Philippine nickel mining industry is in constant need for people. Nickel mining companies need not only Mining Engineers but other experts from different fields, such as:

Metallurgical Engineer, Electrical Engineer, Industrial Engineer, Electronics Communication Engineer, Computer Engineer, Geodetic Engineers, Civil Engineers, Mechanical Engineer, Chemical Engineer, Environmental Engineer, Safety Engineer, Geologists, IT, Draftsman, Statistician, Drill Operators, Statisticians, HE Operators and Drivers, Technicians, HE/LE Mechanics/Technicians, Equipment Operators, Port Operations Manager, Seaman, Electronics Technicians, Barge Maintenance, Metallurgist, Chemist, Agriculturist, Forester, Hydrologist, Biologist, Botanist, Safety Inspector, Doctor, Nurse, First Aiders, Sociologist, Community Relations Development Officer, Supervisor, Utility, Office Staff, Management, HR Staff, Lawyers, Accountant, Cashier, Liaison Officer and Accounting Staff

Engr. Carlo A. Matilac explained that human resources are critical for the nickel industry to meet their targets and maximize the potentials of the entire supply chain. Employees in the mining industry are valuable. They are essential to mining companies' future and growth. In return, the companies take care of their people. They provide world-class training and benefits, and ensure that they are engaged and feel appreciated.

He believes that people employed in the industry are able to contribute not just to their respective companies but also to the host communities and the country in general. In times of natural disasters, employees from mining companies are able to help in disaster response and recovery activities given that they receive professional and intensive training on health and safety.

Open Forum

Moderated by:
Ms. Theresa Defensor
AVP for Communications,
Marcventures Mining and
Development Corporation



SDMP Implementation

Questions about the SDMP were addressed. The speakers discussed that the SDMP is strictly monitored through regular quarterly monitoring. SDMP is aligned with the local barangay development council projects and specific indicators are used to measure the progress of implementation.

When asked why the SDMP amount can't be directly distributed to the community, the speakers explained that fund management goes through governance and several layers to enable transparency, promote accountability, and ensure monitoring. Mining companies are held accountable for managing the SDMP fund which is then evaluated by the MGB in terms of its utilization and extent of alignment with the barangay development plan. The companies are responsible for ensuring that the money is not used for any other purpose other than the SDMP.

Research Collaborations and Funding

During the open forum, it was explained that collaboration between industries and the academe in the area of research and development can be initiated. It is best that a working Memorandum of Agreement is set prior to the putting up of structures and testing centers.

Funding may come from the SDMP. However, this varies depending on company policies. Another option is for the company to directly assist mining and metallurgical-related researches. Incentive systems could be explored, i.e., for thesis that could benefit corporations. Research funding can also be in the areas of environment rehabilitation, similar to those proposals funded through the Environment Protection and Enhancement Program (EPEP).

Mine Life of Nickel Laterite in the PH

A UP Diliman student inquired about the mine life of the nickel laterite in the Philippines. Engr. Matilac replied that given recent technologies, mine life can be more than 25 years. With the progression of technology, the industry looks forward to a longer lifespan and a more sustainable way of producing, processing, and consuming nickel in the near future.

It was also discussed that technology makes mining companies more mindful not only about production but also on how this could impact communities. Mining companies ensure that impact of technology across all aspects of operations is understood and addressed.

Workshop 2:

Nickel and Energy



Opening Message

Mr. Paul Tan

Special Assistant to the President for External Affairs, Carrascal Nickel Corporation, and PNIA Board Member

Mr. Paul Tan of the Carrascal Nickel Corporation formally welcomed the student attendees to the Nickel Initiative 2019. He emphasized the role of his generation at this time, “when we are in the precipice of change,” and are expected to serve as leaders and mentors to the millennials and Gen Z generation.

In the case of the young people, Mr. Tan asked the students to believe in what they can do and to communicate an inspiring vision that they can aspire for. He urged them to rise to the challenges in the global nickel industry and underscored the need to cultivate and harness the industry’s potentials. He talked about the vital role that nickel plays in people’s daily lives, saying that nickel is useful in creating strong alloys that will not easily rust, can withstand high temperatures, and can easily be shaped. There is a bright future for the nickel industry. It has huge potential to provide a lot of opportunities and support for the people.

In closing, Mr. Tan instilled in the minds of the young participants that mining is crucial to the overall economic and human development of any country. Mining has always been a crucial stimulant of growth and technology. As long as civilizations continue to prosper, innovation will thrive and the industry of mining will continue to exist.

Opportunities in Nickel Research: Energy

Prof. Karlo Leonardo Baladad
*Department of Mining,
Metallurgical and Materials
Engineering UP Diliman*



Professor Baladad's presentation highlighted opportunities for nickel research particularly in the energy sector. According to him, one of the fields driving the demand for nickel resources is renewable energy, adding that as the demand for RE increases, so will the demand for nickel resources. He presented the various ways that nickel can be used in the energy sector - including terms of infrastructure, energy generation components, photo-voltaic catalytic systems, and energy storage components. Nickel is also essential in the operation of generation plants as it serves as main component for equipment that requires mechanical handling, or those that are exposed in high temperature, corrosive materials, marine environment, salt and steam environment and for use on reflective services and those that requires wear and tear resistant parts.

Another emerging industry that makes use of nickel is the industry of electric vehicles. The development of this industry would create the demand for support infrastructure such as in-home charging ports and charging ports in parking lots and offices. It could also spur battery-swapping industries.

Professor Baladad enumerated several research areas that could be explored for the nickel industry such as mineral processing, environmental measures, extractive metallurgy, physical metallurgy, and other synthesis and efficiency improvements. For him, the emergence of the nickel industry provides for more opportunities in research and collaboration between the government and industries.

He ended his presentation saying that the future is bright for nickel miners, producers and other related intermediate products industries.



Cleaner Vehicle for Filipino Public

Engr. Karl Lyndon Pacolor
*Secretary,
Electric Vehicles Association of
the Philippines*

Road transport is seen as one of the major sources of greenhouse gas emissions in the country. With the effects of climate change being strongly felt today, the importance of measures to decrease emission greenhouse gas is greater. Giving a brief background on EVAP, Engr. Karl Lyndon Pacolor related that the mission of the organization is to promote the use of electric vehicles in order to reduce reliance on fossil fuels and reduce greenhouse gas emission.

In the Philippines, the use and development of e-vehicles is seen as a way to address problems on the reliability of public transport, road safety and passenger comfort, and the environment impact of road transportation. Electric vehicles in the Philippines started in 2010 with the release of e-jeeps, which served as successful proof of concept that electric vehicles are viable. The recent trend on the adoption of e-vehicles shows improvement and the industry continues to express positive outlook as new innovations come in every year.

Engineer Pacolor shared that the current industry challenge is to lower the cost of production of e-vehicles (2/3 of the cost of e-vehicles is on battery production). There is a need for continuous industry collaboration with the government in the creation of laws such as the Electric Hybrid Vehicles Incentives bill which seeks to provide incentives for manufacturing and use of e-vehicles as public transport and, for establishing charging stations. Having more battery charging and swapping stations would also help.

Building Relationships with Host Communities

Mr. Jonathan “Jojo” Bañez
*Manager,
Community Relations Office
Agata Mining Ventures Inc.*



Mr. Jojo Bañez’ presentation focused on how Agata Mining Ventures gives back to their host community. Following its philosophy of “starting it right, keeping the end in mind,” Agata Mining Ventures has partnered with the communities, including Indigenous People (IP), for community development programs. Hoping to leave the Agata communities in a better place, the company initiates the following programs and policies:

- Transforming the mined areas into agro-forestry ecosystem hubs
- Integrating health and safety, social, and environment programs into business plans
- Disaster response programs for community members
 - Organizing the company’s own response team
 - Organizing, training, and equipping barangay emergency response team
 - Coordinating with the provincial risk reduction in the area
- Environment protection
 - Ridge to reef program where Agata rehabilitated some corals and transferred the coral reefs away from the mining causeway
 - Progressive rehabilitation of mine sites, including planting and forestry and re-vegetation programs
- Agata Community program, a collaboration with local and national government agencies such as the Department of Agriculture and the Technical Education and Skills Development Authority for community capability building-related initiatives

Also in the core of Agata’s community service programs are the IP communities. The law mandates mining companies to provide royalty payment to IP communities. Agata ensures that the Indigenous Peoples residing within their mining site do not only receive royalty but also benefit from services and training for craftsmanship and other livelihood.

Mining companies conduct their community development initiatives not just for compliance. According to Mr. Bañez, they want the communities to develop and grow. Understanding the needs of their host communities and ensuring that they will be sustainable and self-reliant even beyond the end of mine life is critical and of utmost importance for mining companies such as Agata.



Open Forum

Moderated by:
Mr. Jonathan Bañez
Manager,
Community Relations Office
Agata Mining Ventures Inc.

On the Electric Vehicle Industry

The attendees and the speakers discussed the issues raised by the public and faced by the industry in terms of promoting the shift from traditional public transportation to electric vehicles. Cost was the biggest issue, especially among jeepney drivers and operators. The resource person however pointed out that after proper orientation and information dissemination, the drivers and operators of public utility vehicles understood the e-vehicle benefits and have become receptive and positive when it comes to using e-vehicles.

Efforts to mitigate costs and promote e-vehicle industry development include trading old/ traditional jeepneys for e-vehicles, creating ways to revolve funds for e-vehicles, innovations in nickel industry particularly on battery production, among others.

Viability of Local Processing of Nickel

One of the methods seen as a way to boost the nickel industry in the Philippines, and eventually the country's energy industry is to establish and develop the local nickel processing industries in the Philippines. Mr. Bañez shared that it is a goal of the Duterte Administration to have local mineral processing plants. While this may take time and requires resources and support from the government and other industries, this is a possibility that could definitely be explored.

After the Q&A, the student and faculty attendees of the workshop had their afternoon snacks and networked with the resource persons and other delegates from the academe and mining industry.



BUSINESS AND INVESTMENT ROUND TABLE

The Business and Investment Round Table (BIRT) was an exclusive, gathering for over 80 nickel mining industry players and stakeholders. It served as a venue to discuss issues, challenges, and opportunities that impact and could drive changes in the nickel industry supply chain in the Philippines and globally. The BIRT was convened by the Philippine Nickel Industry Association and co-presented by the International Nickel Study Group and CRU Consulting Group.

PROGRAM

DAY 1. Monday. 18 March 2019
Shangri-la at the Fort, Taguig City

| Time | Topics and Activities |
|----------|---|
| | DAY 1 Opening |
| 12:30 pm | Day 1 Registration |
| 01:15 pm | Exhibit Opening |
| | Workshop 1: Nickel and the Environment |
| 2:00 pm | Arrival/ Assembly |
| 2:10 pm | Introduction |
| 2:30 pm | Opening Message Mr. Isidro C. Alcantara, Jr. Chairman, Philippine Nickel Industry Association |
| 2:45 pm | Remarks from Co-Presenter Mr. Paul White Secretary General, International Nickel Study Group |
| 3:10 pm | The Philippine Business and Investment Landscape Assistant Secretary Felicitas Agoncillo-Reyes Board of Investments, Department of Trade and Industry |
| 3:25 pm | Q&A |
| 3:40 pm | Break |
| 3:50 pm | Lightning Talks: Opportunity Landscape Atty. Dennis A. Quintero, European Chamber of Commerce of the Philippines and Head of Energy, Mining & Infrastructure Industry Group, Quisumbing Torres Dr. Richard S. Abendan, Chief of Party, STRIDE Program |
| 4:20 pm | Open Forum |
| 5:00 pm | Networking |
| 5:30 pm | Welcome Reception |

OPENING MESSAGE

Mr. Isidro Alcantara, Jr
*Chairman,
Philippine Nickel Industry
Association*



In his opening message, Mr. Isidro Alcantara raised two immutable facts – first is that the future looks bright for nickel. Nickel consumption is increasing globally, particularly in China with their booming electronic vehicle industry and rising public expenditures on construction. Second is the fact that the Philippines is the second largest nickel producer in the world.

Mr. Alcantara urged the government, private sector and industry players to seize the opportunities in the nickel market. He called on nickel industry stakeholders to map out plans and strategic actions to ensure that the Philippines will be able to take advantage of global and regional developments. There is a need to keep up with the “explosion in demand” for the first applications of nickel, such as stainless steel, and other applications such as electric vehicle batteries.

Towards this end, PNIA seeks to position the nickel industry as a globally competitive and responsible driver of inclusive and sustainable economic growth in the Philippines.



REMARKS FROM CO-PRESENTER

Mr. Paul White
*Secretary General,
International Nickel Study
Group*

Mr. Paul White gave a brief introduction about the INSG, an autonomous, inter-governmental organization established in 1990 and located in Lisbon, Portugal. Membership comprises nickel-producing, -using, and -trading countries.

INSG promotes cooperation among governments particularly in the sharing of best practices on the development of nickel industry and processing and handling related environmental issues. It regularly publishes accurate information related to supply and demand and trade of nickel. The group collects and publishes statistics on nickel markets including production, usage, trade, stocks, prices and other data such as recycling, with the aim of improving market transparency. Mr. White hopes the Philippines, as second largest producer of nickel in the world, could make use of and benefit from these studies. He also informed the body about their next meeting in Portugal where Philippine representatives can attend as observers.

He is positive about the partnership between PNIA and INSG knowing it can lead to the two organizations working together to better understand and analyze the global nickel market and respond to the industry's growing demand. He shared his openness to exchange views and insights with the panel of speakers, industry officials, and conference delegates.

THE PHILIPPINE BUSINESS AND INVESTMENT LANDSCAPE

Ms. Felicitas Agoncillo-Reyes
*Assistant Secretary,
Philippine Board of Investments,
Department of Trade and
Industry*



Assistant Secretary Felicitas Agoncillo-Reyes presented the economic trends in the Philippines, and shared how the country is now one of the fastest growing economies in the region and a viable investment hub.

The Philippines maintains its robust economy, growing at a rate of more than 6% in the last six years (2012–2017). In 2018, the country’s GDP stood at 6.2%, backed by robust industry performance and fueled by surge in construction. The Philippine Foreign Direct Investment grew almost ten-folds from 2010–2017 (US\$1.1 billion - US\$10.1 billion).

Asec. Reyes discussed the Investment Priorities Plan (IPP) of 2017 which contains a list of priority investment activities that may be given incentives. The broadened coverage of the 2017 IPP aims to encourage and attract new capital in sectors and regions that can help address the inequality of growth and the jobs gap. This IPP seeks to transform both the manufacturing and agricultural sectors by expanding their forward and backward linkages, particularly with MSMEs.

Her presentation highlights the competitive fiscal and non-fiscal incentives offered by the Philippines to prospective investors. The incentives include income tax holiday and special tax rate on gross income while non-fiscal incentives include duty-free importation of capital equipment, spare parts and supplies as well as duty-free importation of raw materials and supplies used in export. Complimenting these incentives are policy reforms such as the passage of the Ease of Doing Business and Efficient Government Service Delivery Act of 2018 (EODB), an amendment to the Anti-Red Tape Law or RA 9485.

Before she ended her presentation, Asec. Reyes extended her invitation to the Nickel Initiative BIRT delegates to collaborate with the Board of Investments on future business opportunities in the Philippines.



MARKET ANALYSIS: GLOBAL NICKEL INDUSTRY

Mr. Ian Hiscock
*Head of Consulting for
Southeast Asia,
CRU consulting group*

Mr. Ian Hiscock discussed the factors that drive movements and changes in the nickel value chain. He gave a briefing on these developments including key environment policies affecting nickel production and processing, changing dynamics in the value chain, politics, and the rise of the e-vehicles as “new market”.

He talked about the case of the nickel industry in Indonesia and how the country has increased its capacity for nickel production and processing over the past years. Nickel supply shall be critical in the upcoming years given continued nickel demand for stainless steel and growing need for Li-ion batteries used in e-vehicles.

Mr. Hiscock later zoomed in on the topic of High-Pressure Acid Leaching (HPAL) processing method vs NPI technology. He explained that the success of new HPAL will have significant impact on the long term price for nickel and the ability to address the growing demand from the nickel industry worldwide. He however, pointed out that in the past, high capital expenditures and technical problems have been serious issues in the establishment of HPAL facilities. At an average, HPAL projects have taken around four years to operate at 80% of capacity.

OPPORTUNITY LANDSCAPE: TRADE AND INVESTMENT

Atty. Dennis A. Quintero
*European Chamber of
Commerce of the Philippines*



The European Chamber of Commerce of the Philippines (ECCP) acknowledged that the nickel industry has a crucial role in the value chain towards globalization and that mining is a key driver for global growth, development, and sustainability.

Atty. Dennis Quintero discussed the European Union (EU) and Philippines trade relations. The EU ranks as the 6th largest trading partner of the ASEAN, and 4th largest trading partner of the Philippines. Philippine export to EU amounts to US\$9.3 billion and continuous on an upward trend.

Atty. Quintero welcomes the opportunity of opening doors for collaboration and networking for new development ventures so that economic potentials in the industry can be optimized. ECCP welcomes the partnership with PNIA as a tool to stimulate investment opportunities and collaborative development among industries with shared interests in nickel particularly the e-vehicles and transportation.



OPPORTUNITY LANDSCAPE: RESEARCH AND INNOVATION

Dr. Richard Abendan
*Chief of Party,
USAID - Science, Technology,
Research and Innovation for
Development (STRIDE)*

Dr. Richard Abendan briefed the participants about the STRIDE program. Launched in 2013, STRIDE works in support of the U.S.-Philippines Partnership for Growth with Equity, a United States initiative that promotes broad-based and inclusive growth. STRIDE believes science, technology, research, and innovation create jobs and contribute to achieving inclusive and sustainable growth for the Philippines. Hence, the program helps capacitate stakeholders on innovation and R&D and encourages collaboration to enhance the nation's capacity for innovation-led economic growth.

The STRIDE executive highlighted the value of forming partnerships among government, academe, and industry to create more innovative businesses and products from the Philippines. Dr. Abendan encouraged nickel industry players to pursue R&D and innovation, and partner with the academe to make the research more impactful and relevant.

Q&A Sessions and Dialogue

Moderated by
Mr. Kaycee Crisostomo
Communications Director,
Agata Mining Ventures



The BIRT provided for Q&A sessions between with delegates and resource persons and an open forum segment where delegates and speakers can freely share their views with regard to the development of the nickel industry value chain in the Philippines and globally. Highlights of these sessions are provided below:

THE INDUSTRY AND PHILIPPINE COMPETITIVENESS

Atty. Quintero of ECCP cited the talent and high proportion of young workers/ professionals in the Filipino labor force as two important factors why European companies invest in the Philippines. EU countries also see the high demand for their products in the Philippines because of the growing purchasing power of the “millenials” and middle class.

Specific to nickel industry, however, resource persons and delegates discussed the need for the right incentives and right policy environment to ensure competitiveness. It is necessary to look into the practices in Indonesia and other countries where they give tax incentives to HPAL plants / mineral processing industries.

One delegate opined that the Philippine nickel industry is “dying”. Despite the fact that the country is blessed with one of the largest nickel resources in the world, the industry continues to suffer from uncertainties caused by recent mining policies, dynamics in local political landscape, issues on environment protection and rehabilitation, and lack of capacity for value-add processing.

Other challenges affecting industry competitiveness are in light of finding more access to capital, identification of new nickel markets, and reduction of power costs and other operating expenditures.

POLICY DIALOGUES

Asst. Secretary Felicitas Agoncillo-Reyes expressed the BOI’s willingness to sit down with stakeholders to discuss recommendations to boost the nickel industry in the Philippines. She talked about the government’s role in crafting various industry’s respective road-maps, and offered to work with nickel stakeholders in crafting its own.

PNIA President Dante Bravo highlighted “openness’ on mining policy environment as an imperative in charting the path to nickel industry development.

PNIA Chairman Emeritus and The Nickel Initiative 2019 Chair, Clarence J. Pimentel, Jr. remarked that the event is conceptualized and organized by the PNIA with the specific objective of initiating conversations on industry issues and opportunities. Beyond talking about problems, however, he reiterated the need to find solutions on the challenges confronted by nickel companies.



CURRENT OPPORTUNITIES

Amid the challenges, several government initiatives were identified as opportunities that help boost the nickel industry. These include the current administration’s Build, Build, Build (infrastructure) program, reforms in tax regime, enactment of Ease of Doing Business Law, revision of the Philippine Corporation Code, lifting of restrictions in land acquisition, and BOI investment promotion.

INDUSTRY-ACADEME PARTNERSHIP FOR INNOVATION

In response to the question about the practical steps in determining research problems, Dr. Abendan underscored partnership between industry and the academe. To operationalize such, Dr. Abendan said that the process requires a lot of engagements and trust building measures, which may start from conduct of innovation workshops, networking, and FGDs on industry issues that may be addressed through science and technology. STRIDE offered to assist the industry should they wish to explore R&D/ innovation partnerships with the academe.

Dr. Abendan stressed the need for experts in developing downstream processes of the nickel value chain. He mentioned though that R&D in the Philippines is challenged by low level of research capacity, lack of Filipino scientists (brain drain), and insufficient government investments on science and research.

ISSUES AND RECOMMENDATIONS

Atty. Bravo shared his thoughts on industry challenges and on how these could be addressed. Issues include overall tax regime, which has consequential impact across multiple industries. He cited the imposition of excise taxes on fuel as one of the major factors affecting the growth of business. According to him, the mining and nickel industry has become less competitive due to high taxes; more than 50% of what the industry players generate goes to government in the form of taxation.

He suggested for the Philippines to refer to the best practices in other advanced countries where mining thrives. The focus should not be on “getting more taxes” from the mining industry but should rather look more at the benefits that the industry provides – employment, sustained economic development, community progress, better extraction processes and technologies. He stressed the need for comprehensive utilization of resources in the Philippines.

The issue on the lack of stable and long-term mineral policy was raised. The view is that mining industry should not be treated differently from other industries, and that policies should be industry-driven, pro-active, and sustainable. The industry cannot move forward if the policy environment is merely reactive. As Atty. Bravo said, *“We cannot change our priorities overnight as a result of unpredictable policies.”*

ESTABLISHING NICKEL PROCESSING PLANTS

Calls for the establishment of processing plants is one of the drivers behind the proposal to create a nickel industry road-map. The establishment of value processing plants is capital intensive; the industry needs government support if it is to establish such facilities. While these plants could generate more revenues and create jobs in the long term, there are views that this route deserve more careful planning and research.

Mr. Hiscock from CRU Consulting Group remarked that the viability of processing plants depend on a number of factors. Nickel processing may not necessarily be appropriate for all nickel producing countries. As such, in-depth research and scenario-mapping should be done in order to project a more accurate forecast on the viability of such route.

E-VEHICLE AS NICKEL END-USER MARKET

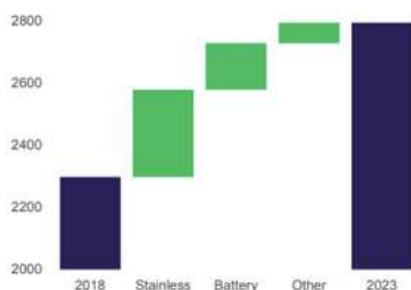
Edmund Araga, EVAP President, discussed the forging of partnership with PNIA as a positive step towards the direction of producing electric vehicles' batteries in the Philippines. He is bullish about the potentials of tying up with business networks in ASEAN and CHINA, and welcomes the impact of BOI incentives and existing AFTA agreements (allow zero tariffs) on the entire nickel value chain.

Mr. Araga said that neighboring countries encourage investments. Some investors are open to finance the production of e-vehicle batteries using local nickel resources and exporting them to US and European markets. These partnerships are not easy task; hence, it requires collaboration with stakeholders in the industry and the academe.

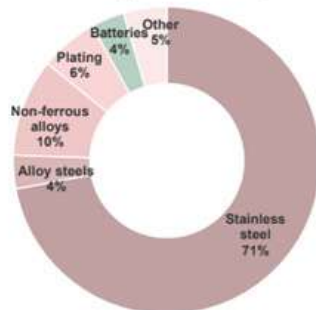
CRU

Next 5 years, stainless most important driver of global nickel demand. In 2018, batteries just 4% of nickel demand

Nickel demand growth Nickel demand kt



Nickel-use by end-use sector, 2018





SYNTHESIS

Ms. Nini Montemayor Santos
Conference Director,
The Nickel Initiative 2019

Ms. Nini Montemayor Santos presented the highlights of the Business and Investment Round Table (BIRT). She summarized the key points delivered by the speakers including the presentation of Mr. Ian Hiscock on the factors that drive movement and changes in the global nickel value chain. These factors include environment policies on nickel mining and processing, changing dynamics in the nickel value chain, geo-politics, and the rise of the e-vehicles as “new market” of the nickel industry.

During the open forum the following opportunities in relation to boosting the nickel industry supply chain were discussed:

- Government’s willingness to meet with the industry and discuss enabling policies
- Industry-academe partnerships for R&D and innovation
- Potential collaboration with nickel end-user industries i.e., PNIA and EVAP partnership
- Possibilities for the Philippines to produce high-nickel content batteries and manufacture electric vehicles
- Government initiatives that help create the right business and investment environment:
 - Infrastructure projects (Build, Build, Build)
 - Reform of tax regime to encourage investments in the Philippines
 - Enactment of Ease of Doing Business Law
 - Revision of the Philippine Corporation Code
 - Lifting of restrictions in land acquisition

The need to develop a nickel industry road-map was put forward; a road-map that that will allow the industry to chart its path, understand the ecosystem where it is part of, map out opportunities and challenges, and identify interventions and growth requirements. The panel as well as the participants understand that crafting a comprehensive road-map for the industry require the realization of some strategic imperatives as follows:

- Openness on mining policy environment
- Continued dialogue on issues and opportunities impacting the industry
- Assessment of the economics of the country's nickel landscape in order to identify the kind of policy that can support the industry
- In-depth research on the viability of mineral processing in the Philippines
- Collaboration among stakeholders

Ms. Santos ended the synthesis by stressing the remarks of Mr. Clarence J. Pimentel, Jr. about the need for nickel stakeholders to focus NOT only on issues but on finding solutions to such issues. The Nickel Initiative is organized by PNIA in order for stakeholders to be more proactive in maximizing potentials and opportunities towards the development of the nickel value chain in the Philippines and across the world.

The background of the entire page is a photograph of an event stage. A large screen displays the event's branding. The text 'THE NICKEL INITIATIVE' is in large, white, bold, sans-serif font. Below it, '2019' is centered between two horizontal blue lines. Underneath that, the tagline 'SHAPING TOMORROW, TOGETHER' is written in a smaller, blue, sans-serif font. To the right of the text is a large, illuminated graphic of a watch face with blue and white tones. The stage is lit with blue spotlights, and the ceiling has several vertical light fixtures. In the foreground, the tops of blue chairs and tables are visible.

THE NICKEL INITIATIVE 2019

SHAPING TOMORROW, TOGETHER

WELCOME RECEPTION

The Welcome Reception was held between 5:30 pm to 8:00 pm on 18 March 2019 at the Shangri-la at The Fort. It was graced by The Nickel Initiative delegates from various sectors and guests from the government, industries, and academe. Secretary Roy A. Cimatu of the Department of Environment and Natural Resources (DENR) was the guest of honor.

THE PNIA INTRODUCTION

PNIA BOARD MEMBERS AND MEMBER-COMPANIES

The Philippine Nickel Industry Association (PNIA) was formally introduced to The Nickel Initiative 2019 delegates and guests. The Board Members and new member companies were presented.

PNIA BOARD MEMBERS

1. PNIA Chairman Emeritus Clarence J. Pimentel, Jr., President and CEO of CTP Construction and Mining Corporation
2. PNIA Chairman Isidro C. Alcantara, Jr., President of Marcventures Holdings
3. PNIA President Dante R. Bravo, President of Global Ferronickel Holdings, Inc.
4. Engr. Cesar F. Simbulan, Jr., President, DMCI Mining Corporation
5. Mr. Das Consunji-Reyes, Vice President for Marketing, DMCI Mining Corporation
6. Mr. Antonio Co, President, Carrascal Nickel Corporation
7. Mr. Paul Tan, Carrascal Nickel Corporation and PNIA Treasurer
8. Mr. Ferdinand Pallera, President, Citinickel Mines and Development Corporation
9. Mr. Kaycee Crisostomo, Director of Communications, Agata Mining Ventures, Inc.
10. Mr. Robert L. Nazal, President, MRMJ Earth Movers Corporation
11. Mr. Segundino Y. Selma III, Chief Operating Officer, ANSECA Development Corporation



NEW PNIA MEMBER COMPANIES



ANSECA Development Corporation



BEST TRUCKING & TRANSPORT PHIL. INC.
Kinalablan, Cagdianao, Claver, Surigao del Norte

Best Trucking and Transport Philippines, Inc.



Cagdianao Konstruct Development, Inc.

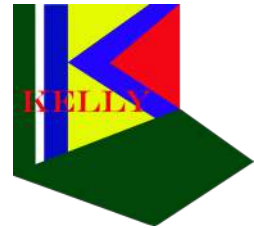


Carson Shipping and Port Terminal Services, Inc



IPM Construction & Development Corporation

IPM Construction and Development Corporation



Kelly Logistics Services



Landstar Earth Moving Corporation



Sturdybuilt Construction and Development Corporation

Sturdybuilt Construction and Development Corporation



Lirio Shipping Lines Incorporated



MRMJ Earthmovers Corporation



Ocean Pacific Shipping & Forwarding Corporation

Ocean Pacific Shipping and Forwarding Incorporated



Virlo Construction



Truck Lord Hauling Services

MESSAGE

Secretary Roy A. Cimatu
*Department of Environment
and Natural Resources*



In his message, DENR Secretary Roy A. Cimatu recognized the role of nickel in the Philippines and across the world. He lauded PNIA for initiating the country's first international conference on nickel.

Secretary Cimatu underscored the role of collaboration between the DENR and the nickel industry for industry development. He cited the cases of Boracay and Manila Bay Rehabilitation programs as testaments of what can be achieved if and when stakeholders work together. He urged the "nickel mining industry to continuously work with the government." He closed his speech by saying:

“Let us remain focused that we will be able to bring industry to play a key role in achieving sustainable development. Together, we will shape tomorrow... Cheers to a more robust Philippine nickel industry!”

Day 2



CONFERENCE

The Nickel Initiative 2019 Conference provided delegates and guests a wide range of insights resulting from the presentations made by the event's distinguished set of local and international speakers. Aside from the keynote message delivered by Hon. Gloria Macapagal Arroyo, Speaker of the House of Representatives, the Conference discussed five topics namely: 1) opening presentation on securing the future of Philippine industries, 2) the state of nickel industry and end-user industry landscape, 3) new innovations that could impact nickel industry and the industry's host communities, 4) global developments and innovations in nickel and nickel processing, and 5) impact of sustainable nickel mining in the economy. The event also saw the presentation of two signed Memorandum of Understanding (MOU) between PNIA and EVAP as well as the MOU between PNIA and the ECCP.

PROGRAM

DAY 2. Tuesday, 19 March 2019
Shangri-la at the Fort, Taguig City

| Time | Topics and Activities |
|----------|--|
| 7:30 am | Registry and Breakfast |
| 8:30 am | Opening Ceremonies |
| 8:50 am | Welcome Remarks Mr. Clarence J. Pimentel Jr. Conference Chair, The Nickel Initiative 2019 |
| 9:00 am | Message Atty. Dante R. Bravo President, Philippine Nickel Industry Association |
| 9:10 am | Opening Presentation: Securing the Future of Philippine Industries Undersecretary Rafaelita M. Aldaba Department of Trade and Industry Introduced by PNIA President Dante R. Bravo |
| 9:45 am | Keynote Message Hon. Gloria Macapagal Arroyo Speaker of the House of Representatives Republic of the Philippines Introduced by PNIA Chairman Isidro C. Alcantara, Jr. |
| 10:30 am | Discovering Nickel and Tomorrow's Industries Mr. Paul White Secretary General, International Nickel Study Group Mr. Edmund A. Araga President, Electric Vehicle Association of the Philippines Mr. Lawrence Liu Tshingshan Holding Group Co., Ltd. Introduced by PNIA Board Member Cesar F. Simbulan |
| 12:00 nn | Lunch Break/ Press Conference |

| Time | Topics and Activities |
|--------|--|
| 1:15pm | <p>The Next Generation of Innovators and R&D Champions</p> <p>Mr. Earl Patrick Forlales CEO and Founder, CUBO Modular</p> <p>Dr. Rogel Mari Sese President, Regulus Space Tech, Inc.</p> <p>Introduced by PNIA Board Member Paul Tan</p> |
| 2:30pm | <p>Nickel Next: Global Developments in Mining and Mineral Processing</p> <p>Mr. Cyrille Jouin Trader, Glencore International AG</p> <p>Mr. Ian Hiscock Head of Consulting (Southeast Asia), CRU Consulting Group</p> <p>Mr. Roy Huang Ningbo Lygend Mining Co, Ltd.</p> <p>Introduced by PNIA Board Member Robert Nazal</p> |
| 4:00pm | <p>Industries Unite: Collaboration for Tomorrow's World</p> <p>Ceremonial Presentation of the Memorandum of Understanding (MOU) between Philippine Nickel Industry Association (PNIA) and partners.</p> |
| 4:15pm | <p>Closing Keynote Presentation: Industrialization and Tomorrow's Economy</p> <p>Dr. Bernardo M. Villegas Economist and Professor University of Asia and the Pacific</p> <p>Introduced by PNIA Board Member Das Consunji-Reyes</p> |
| 5:00pm | <p>Closing Remarks</p> <p>Mr. Isidro C. Alcantara, Jr. Chairman, Philippine Nickel Industry Association</p> |



WELCOME REMARKS

Mr. Clarence J. Pimentel, Jr.
Conference Chair
The Nickel Initiative 2019

“There was an idea. The idea was to bring together a group of remarkable people, see if they could become something more. See if they could work together when we needed them to fight the battles we never could.”

Mr. Clarence Pimentel, Jr. welcomed the participants from the government, industry and other partners from private sector to The Nickel Initiative 2019, a flagship project of PNIA. He extended his deepest gratitude to their partners who have embraced their passion to work together for the development of the nickel supply chain.

At the start of his opening remarks, Mr. Pimentel explained how PNIA conceptualized the conference, backed by their desire to go beyond the usual conversations in the mining industry and explore business opportunities and collaboration with stakeholders locally and across the world. PNIA seeks to broaden the discourse about the linkages, opportunities, and challenges in the nickel value chain.

Mr. Pimentel emphasized the desire of the Nickel Initiative and PNIA to foster collaboration and enable partnership to promote businesses, investments that are responsible and sustainable. He quoted Nick Fury from the movie *The Avengers*, to emphasize this point:

“There was an idea. The idea was to bring together a group of remarkable people, see if they could become something more. See if they could work together when we needed them to fight the battles we never could.”

He ended his remarks by officially declaring The Nickel Initiative 2019 Conference open and by presenting the event’s opening video.

MESSAGE

Atty. Dante R. Bravo
*President,
Philippine Nickel Industry
Association*



Atty. Dante R. Bravo gave a brief historical background on the policies and developments that shaped the mining (including nickel) industry in the Philippines. He stressed that the conference will look beyond the regulatory framework which governed the mineral extraction and processing in the Philippines, as PNIA seeks to revisit the business opportunities and potential growth prospects of the entire nickel supply chain.

Atty. Bravo stressed the need for collaborative efforts between stakeholders in government and the private sector to be able to explore and maximize global trends and opportunities in nickel consuming sectors. The joint efforts of government and the private sector should be continuous and always aimed at revitalizing and developing mining in a manner that balances economic, environmental, and social objectives.

He cited the continuous rise in demand of nickel from 1.4 million tons in 2011 to 2.4 million tons at present which can be attributed to the demand for stainless steel largely because of the industrialization in China. The PNIA President emphasized that there is so much potential for nickel, and how important it is as a commodity because of its many applications. He also cited the possible impact to the industry of the rise of electric vehicles in the near future.

Atty. Bravo urged the participants to listen and learn from the experts invited by PNIA to speak at the conference. He expressed confidence that the resource persons shall be able to update delegates on the developments and challenges in the nickel value chain industry and share their insights on how these can be better harnessed.

Atty. Bravo stressed the need for collaborative efforts between stakeholders in government and the private sector to be able to explore and maximize global trends and opportunities in nickel consuming sectors. The joint efforts of government and the private sector should be continuous and always aimed at revitalizing and developing mining in a manner that balances economic, environmental, and social objectives.



Q&A WITH ATTY. BRAVO

Facilitated by Mr. Quintin Pastrana
ANC Anchor

The Nickel Industry Road-map

Atty. Bravo believes that the first step in building the road-map is to clear out misconceptions about the industry. Secondly, there is a need to communicate a clear message locally and abroad that the Philippine industry is open for business and that opportunities are not limited to manufacturing and agriculture.

According to Atty. Bravo, the Philippines has several mining-related laws and policies. Some of these, he said, (e.g., tax regime, business ownership restrictions) must be revisited, as it results into uncertainty among investors. He remarked, however, that the government cannot focus on the regulatory component alone. He cited the importance of thinking long term and aligning the government mind set on the role of nickel mining in the economy. The PNIA President urged stakeholders to position the nickel industry for the future.

Value Added Processing Plants

Establishing mineral processing plants is capital intensive; and coming up with such has to be well studied. Atty. Bravo believes stakeholders must learn from Indonesia's experience in establishing their nickel processing plants. For him, ensuring industry growth entails predictability and stability of policies that will reduce investors' risks. China is an example of a country that helped its industries cope with volatile cycles as well as tax burden and power costs.

Sustainable Industry Growth

Atty. Bravo assured stakeholders that the nickel industry does not and will not compromise environmental protection and community development in order to generate more profits. The proposed nickel industry road-map, he said, should ensure sustainability in terms of business, communities, and environment.

KEYNOTE MESSAGE

Hon. Gloria Macapagal Arroyo

*14th President of the Republic of the Philippines
and Speaker of the House of Representatives*



Speaker Gloria Macapagal Arroyo has been at the forefront of pushing economic growth in the Philippines in the past three decades, having led the country both at the government’s legislative and executive branches. She has been instrumental in the passage of policies promoting the mining industry such as the Philippine Mining Act of 1995 and Executive Order No. 270 or the National Policy Agenda on Revitalizing Responsible Mining in the Philippines.

In her keynote speech, Speaker Arroyo briefly discussed the policies that helped shape the mining ecosystem that the Philippines has today. She recognized the value of collaboration among government and mining stakeholders, and stressed that:

“When industry players and DENR work together, your sector (mining) can contribute greatly to government revenues, exports, economic growth, job creation and the progress and development of the local communities that host mining.”

The House Speaker advised both the mining industry players and the Department of Environment and Natural Resources (DENR) on how they could develop the industry while realizing each other’s objectives. She believes that despite the administration’s strict stance on mining, the industry can still grow. As a proof point, she cited that mining output actually grew under the term of her successor in Malacañang amid strict mining policies.

“When industry players and DENR work together, your sector (mining) can contribute greatly to government revenues, exports, economic growth, job creation and the progress and development of the local communities that host mining.”

PROPOSED ACTIONS FOR THE INDUSTRY

Speaker Arroyo advised the industry to pursue efforts within the framework, mindset, and vision of President Rodrigo Duterte in relation to mining and the economy. According to her, mining companies must be guided by the following principles in order to help facilitate overall industry development process:

1. Mining projects should have the support of host governments, ideally up to the community/ grassroots level;
2. Mining companies should be guided by DENR Department Administrative Order (DAO) 2018-19 titled “Guidelines for Additional Environmental Measures for Operating Surface Metallic Mines,” when it comes to the issue of open-pit mining;
3. Mining projects and plans should include processing facilities at present or in the realistic future. Companies must be ready to push forward-linkages within the value chain; and
4. Mining operations should provide for environment rehabilitation; progressively - area by area - and not just at the end of the mine life. Speaker Arroyo is confident that this can be done, as she cited some Philippine mining companies that have shown successful rehabilitation of their operations areas. She encouraged the industry to implement public education campaign on their environment rehabilitation initiatives.

PROPOSED ACTIONS FOR DENR

Speaker Arroyo urged the DENR to view itself not just as a regulator but also as a promoter of responsible, world-class, efficient and mining businesses. The DENR should pursue broader considerations categorized into three areas as follows:

1. **Process.** Focus and speed-up existing reviews and processing of approvals of applications for mining permits that are in the pipeline. Speeding up the process from permits to operations is also mentioned.
2. **Benefits.** View the industry from a “benefits lens” and review how it can further contribute to increasing fiscal revenues.
3. **Responsible Mining.** Act on applications and businesses that comply with regulations and policies. Review not just policies but also admin procedures as these could also slow down industry outputs.

LEGISLATIVE MEASURES

Speaker Arroyo remarked that Congress should not have an adversarial stance towards mining, but rather, should help and work closely with the industry and DENR to find common ground and solutions that would benefit communities and the country as whole.

The Speaker informed the delegates how both chambers of Congress are working to pass a new fiscal regime for the mining industry before the joint session ends in June 2019. The Senate adopted the version of House Bill 8400 which provides for the imposing of a range of royalties to mining operations. One key provision is the imposition of a margin-based royalty for large scale mining - starting from 1% for a margin of 1-10 percent to as much as 5% as the margin increases to 70 percent.

Large-scale mining operations located within mineral reservations areas shall be imposed a royalty tax equivalent to 3% of the gross output of the minerals. In the case of small-scale mining, contractors within or outside mineral reservations shall pay to the government a royalty equivalent to one-tenth of 1% of gross output.

Speaker Arroyo said that when enacted, HB 8400 shall result to higher government revenues from mining industry amounting to PHP22 billion compared to PHP19 billion in 2017. Royalties to be received by the government shall also increase from PHP1 billion to PHP3 billion.

Speaker Arroyo ended her speech re-emphasizing the need for government and industry players to work together.

“Indeed, let us be together in shaping tomorrow, for nickel, for your host communities, and for the economy of the Philippines,” Arroyo said.





SECURING THE FUTURE OF PHILIPPINE INDUSTRIES

Undersecretary
Rafaelita M. Aldaba
Department of Trade and Industry

Usec Aldaba proposed the development of a road-map that will help transform & upgrade nickel industry from nickel ore & concentrates to higher value products, and move up along the global value chain. To do this, she stressed the need to remove industry barriers and find solutions to move the industry into the next level. The role of government and private sector is critical.

As DTI Undersecretary for Competitiveness and Innovation, Usec. Rafaelita Aldaba presented the government framework in securing and developing Philippine industries through the Philippines Inclusive Innovation Industrial Strategy (i3S). She also discussed her views on nickel mining upgrading and industry growth, and stressed that strong collaboration between government, academe, and industry is needed not only to formulate the Nickel Industry Road-map but more importantly during the implementation of such road-map.

Usec. Aldaba's presentation is divided into four parts:

Macro Performance & Economic Structure.

She highlighted the remarkable growth of the gross domestic product (GDP) of the Philippines from 2010 to present amid the economic and global uncertainty. She attributed the manufacturing resurgence experienced by the Philippines to the rising expenditures in China, growing domestic market, growing middle class, young English speaking workforce, moderate wage increases, stable business & consumer confidence.

New Industrial Strategy

The Inclusive, Innovation, Industrial strategy (I3S) is comprised of three main strategies employed by the government to promote industrial innovation. It includes building an innovation and entrepreneurship ecosystem, removing obstacles to growth and strengthening domestic supply chains, and participation in global/regional value chains.

Inclusive Filipino innovation and Entrepreneurship Road-map (IFER).

The road-map aims to bridge the gaps in the innovation and entrepreneurship ecosystem. To achieve this, DTI institutionalized five roadmap pillars as follows: 1) building of soft and hard infrastructure, 2) incentives and enabling environment, 3) positioning of innovative industries for rapid growth, 4) creating opportunities for financing, building entrepreneurial culture and professional services to make SMEs more innovative, and 5) forging strong relationships among agencies and development of innovation-ready workforce. Usec Aldaba cited the value of Regional Inclusive Innovation Centers (RIICs) in bridging the gap between innovation and entrepreneurship. She stressed that these RIICs should be able to consider the local and regional conditions to be more relevant and effective.

Nickel Mining Industry: Upgrade and Level Up the Value Chain.

Usec Aldaba proposed the development of a road-map that will help transform & upgrade nickel industry from nickel ore & concentrates to higher value products, and move up along the global value chain. To do this, she stressed the need to remove industry barriers and find solutions to move the industry into the next level. The role of government and private sector is critical.

DISCOVERING NICKEL AND TOMORROW'S INDUSTRIES

Speaker 1: Mr. Paul White

*Secretary General,
International Nickel Study
Group*



Mr. Paul White discussed the historical production trends of nickel worldwide and the potential growth of nickel demand in the future given the rise of electric vehicles and the continued demand for stainless steel in China and other parts of the world.

Mr. White's presentation showed the world nickel mine production decreased from 2013 to 2016, but increased since then. Mine production reached 2,345 Mt in 2018 (+8.9%), and is expected to increase further to 2,445 Mt in 2019. Almost all growth is coming from Indonesia to feed its domestic NPI production and exports. Mr. White is optimistic that there will be a number of mines and new projects in the pipeline that may reopen soon. The expert from INSG pointed out, however, that the nickel market has been in deficit since 2016. There is a provisional deficit of almost 130kt in 2018, after a stronger than expected slowdown in the fourth quarter of 2018. In 2019, the forecast is that the market will remain in deficit though smaller than 2018.

Current data shows China uses 50% of the world's primary nickel. It is estimated that 85% of the nickel produced are used for stainless steel and alloys in China and the rest of world. Mr. White explained that the continuous increase in electric vehicles over the past years could be a big potential market for nickel since said industry will need more batteries where nickel is a primary component.

Speaker 2: Mr. Edmund Araga

*President
Electric Vehicle Association of
the Philippines (EVAP)*



Mr. Edmund Araga discussed how EVAP has evolved through the years since it was established in 2009. He cited the major benefits gained by their association as a result of holding Electric Vehicle Summits in the past years. The first of among these benefits is the generation of foreign investments on e-vehicle industry amounting to PHP 3 billion. Other major milestones include the formation of joint ventures with foreign electric vehicle industry players, transfer of modern technology, as well as learning the best practices of their foreign counterparts.

In his presentation, Mr. Araga mentioned the current initiatives of the EVAP to partner with academic institutions, government agencies and local governments to open areas of collaboration specifically on disseminating the information about the proper use of e-vehicles and its contribution to the environment. He expressed optimism that their partnership with industry players such as the Philippine Nickel Industry Association will be a major step towards achieving their goal of making the Philippines the electric vehicle hub of Asia.



Speaker 3: Mr. Lawrence Liu

Tsingshan Holding Group Co. Ltd.

Mr. Lawrence Liu of Tsingshan Holding Group, the largest stainless steel producer company in the world, described the scope and magnitude of their business and how it started in 1992. Throughout these years, Tsingshan has been committed to produce high quality, environment-friendly, and low cost stainless steel products. The company operates four domestic stainless steel production bases at Shanghai, Zhejiang, Fujian, and Guangdong.

Mr. Liu showed in his presentation their current overseas projects in India, United States of America, Zimbabwe, and Indonesia. One of their major plants is located in Indonesian Morowali Industrial Park (IMIP). This plant consists of industry recognized infrastructure and operational facilities. The IMIP currently comprises of the following:

- 2.0Mt pa stainless steel capacity (currently expanding to 3.0Mt pa)
- 0.5Mt pa carbon steel capacity (currently expanding to 3.5Mt pa)
- 0.6Mt pa high carbon ferrochrome
- 1.5Mt pa NPI capacity (likely expanding to 1.95Mt pa)
- 1.26GW coal-fired power plant (currently expanding to 1.96GW)
- Lime plant, coke plant, acid plant
- Port facilities
- Executive guest quarters and an executive visitors' hotel

At the end of his presentation, the Tsingshan official reiterated that part of their business model in being a leader in stainless steel manufacturing is strict compliance with international health and safety standards as well as the adoption of proper environmental rehabilitation programs.

OPEN FORUM

Moderated by
Mr. Quintin Pastrana

ANC Anchor



At the open forum, the following points were discussed:

Developing End-User Industries

EVAP President Araga raised the need for tax incentives for emerging nickel end-user industries such as electric vehicles and, in the future, e-vehicle batteries. At present most part of e-vehicles manufactured in the Philippines are imported. Tax incentives for the production of batteries locally can help lower the manufacturing cost of e-vehicles in the country.

Foreign Investments and Partnerships

Mr. Araga shared that DTI and DOTR encourage local businesses to seek private financing from companies/ investors in China. Filipino businessmen only need to show proof of business concepts to prospective investors/ credit provider. EVAP envisions the Philippines not just to manufacture e-vehicles locally but to export these products as well. Mr. Liu from Tshingshan remarked that their company is open to share their best practices in the stainless steel manufacturing industry.

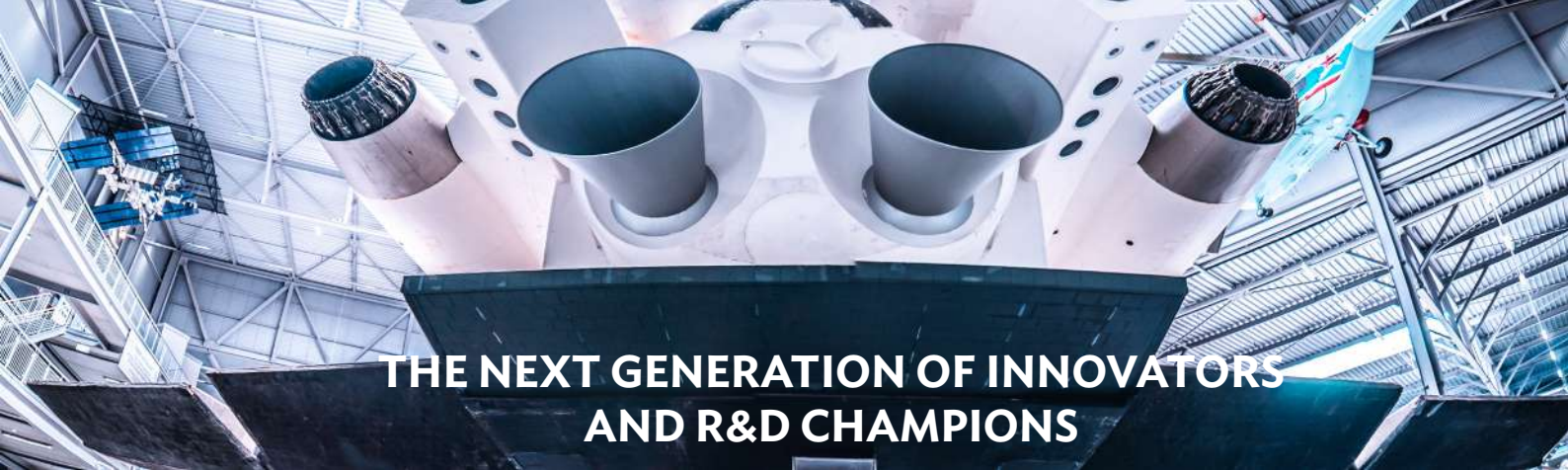
Global Market and Best Practices

In relation to overseas best practices in nickel mining industry that the Philippines can adopt, Mr. White encouraged the Philippines to attend the INSG meeting in Portugal as “observer.” According to him, joining international groups of experts like INSG can be a major step towards nickel industry development.

The speakers are bullish about the future of nickel industry, given strong demand for stainless steel and other new opportunities from the demand side, i.e., e-vehicle industry. Hence, Mr. Liu stressed the role of power in establishing and operating RKF industries/ facilities. He urged the lowering of power costs in the Philippines, should it wish to level up the nickel value chain.

INSG Membership Application

When asked about the mechanism in relation to INSG membership application, Mr. White explained that it is quite straightforward and seamless. Governments of interested countries can send expression of interest (EOI) to be a member. Once accepted, the country shall be asked to pay the membership fee. Prior to sealing commitments (signing in as member), interested countries are first invited to be an “observer” and participate in INSG meetings.



THE NEXT GENERATION OF INNOVATORS AND R&D CHAMPIONS



Speaker 1:
Mr. Earl Patrick Forlales

*CEO and Founder
CUBO Modular*

The mining companies can conduct bamboo planting and bamboo-related livelihood training as part of their corporate social responsibility and environment rehabilitation programs.

Mr. Patrick Forlales is a 23-year old materials engineer who developed an innovative yet affordable solution to address housing shortage through his design called CUBO, a low-cost modular housing made from engineered bamboo. In his speech, Mr. Forlales highlighted the need for young engineers and other professionals to think outside the box and to continue to innovate in order to solve perennial social problems.

Because of R&D, Mr. Forlales was able to transform an ordinary bamboo into an “engineered bamboo.” Mr. Forlales explained that it takes only 3 years to grow a bamboo but with proper “engineering solutions and innovation,” and such bamboo can already be used for housing that can last up to almost 5 decades. By using engineered bamboo, CUBO houses feature properties and benefits such as reduced heat gain due to space between roof and ceiling; inclined roof for easier rain water drainage and collection; cross ventilation through properly positioned window and door; and elevated floor to prevent flood water from entering.

As a company, CUBO Modular envisions having planted bamboo in around 700 hectares of land in order to build 20,000 houses in the future. Mr. Forlales is optimistic that through partnership with stakeholders such as the mining industry, the Philippines can generate more bamboos for building durable housing units. The mining companies can conduct bamboo planting and bamboo-related livelihood training as part of their corporate social responsibility and environment rehabilitation program.

Speaker 2:
Dr. Rogel Mari Sese

*President,
Regulus Space Tech Inc.*



A top Asian scientist and an astro-physicist, Dr. Rogel Sese said that nickel minerals came from and were produced inside stars multiple millions of years ago. According to him, all nickel and metals that are on earth come from space. “In the history of star formation, nickel is the heaviest element that can be produced inside a star, specifically radio-active nickel together with iron,” Dr. Sese said.

The scientist shared interesting information on the use of nickel in aerospace applications and discussed the benefits of using satellite technology for mining operations. According to Dr. Sese, anything larger than 1 ruler could be seen from space through satellite technologies. As such, satellite technologies can be used to help mining companies find geographical locations of possible new mining sites, assess their sites’ environmental impact, and even in automating their tractors and equipment.

Dr. Sese also discussed the possibility of resource extraction from space. He cited a 90-ton Sikhote-Alin Meteorite which crashed in Russia as an example of a meteorite which consists of 5.9% in nickel. Most metallic asteroids are rich in nickel, making the prospect of resource extraction economically possible (but risky and speculative). Space mining is another possibility. A small asteroid in space (1 kilometer long) can produce nickel equal to 10-years of global nickel production.

A potential challenge to Philippine space mining is the country’s agreement to be a signatory to a treaty that bans all country explorations and use of celestial bodies without the approval or benefits of other states. Dr. Sese also raised the question on the economic impact of space resource mining to nations that mine minerals (which often do not have the capability yet to do space mining) such as the Philippines.

The astrophysicist talked about the Philippines’ space development program and the pending bill on the establishment of a Philippine space agency. Prospects for space industry are high, he said. At present there are already a number of aerospace companies in the country producing space equipment and components. Likewise, there are already plans to launch rockets from the Philippines. Dr. Sese said that the actual launch site in the Philippines has already been identified, and that it is near a mining site.

He ended his presentation by reiterating that space and mining sectors could work hand in hand in the future and achieve mutual benefits.

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OPEN FORUM

Moderated by Mr. RJ Ledesma

Celebrity Host and Entrepreneur

Bamboo housing

Mr. Forlales reiterated his belief that use of engineered bamboos can help address housing backlog in an affordable and rapid way. He urged mining companies to grow bamboos as it not only helps prevent erosion and landslide, it also is a livelihood alternative for communities. He said Marcventures Mining already started to plant giant bamboos in Mindanao.

When asked if the CUBO model is already applied in other countries, Mr. Forlales said that at present he is not aware of any country implementing this model. Mr. Forlales also confirmed that engineered bamboos are robust materials and can withstand typhoons. Another specie of bamboo that can be used for modular houses is the “kawayang tinik” which has thorns surrounding its branches; these thorns help make the bamboo resistant to winds.

Cost of space (satellite) technology for mining

Dr. Sese believes confirmed that it could be costly to establish communication satellite but clarified that in the long term it is cheaper considering that the technology can make identification of new mining reserves/ sites easier and efficient. It can also be used to monitor areas for rehabilitation.

Space agency bill in the Philippines

Dr. Sese discussed the pending bills in Congress which aimed to create a Philippine Space Agency and institutionalize a Philippine Space development and utilization policy. Under the version of the House of Representatives, the space program is proposed to be under the Department of Science and Technology (DOST). In the Senate, the bill proposes such program to be under the Office of the President as it is relevant across many other sectors such as transportation, science and technology, and defense.

The need for space technology

Space development is already a necessity - Dr. Sese said when he was asked about the importance of space development program amid government’s limited budget. He highlighted the benefits of space technology and the solutions it can provide in the areas of disaster management, traffic management, internet and communications, etc. A cost benefit analysis shows that for every PHP1 invested in space technology, expected return ranges between PHP2.50 to PHP3.00.

Dr. Sese said that in Southeast Asia, only the Philippines and Brunei have no communication satellite. Less developed countries such as Cambodia and Laos already have one. Myanmar is launching its own this year. Space is no longer a luxury and a playground of advanced countries.

NICKEL NEXT: GLOBAL DEVELOPMENTS IN MINING AND MINERAL PROCESSING

Speaker 1:
Mr. Cyrille Jouin

Trader,
Glencore International AGT



Mr Cyrille Jouin discussed how demand growth is set to snowball as the battery revolution gains traction. In his presentation, he explained that more than half of the global nickel inventory that existed in 2015 has already been consumed. Nickel producers are unable to service demand. Even in a context of slowing demand and strong NPI driven supply growth, the draw in nickel inventory is expected to continue.

He cited the need for new supply especially if the demand for electric-vehicle driven batteries exceeds conservative expectations. He stressed that demand for nickel is much stronger than most market participants recognize and the accumulated deficit is much higher than people currently think.

The Glencore trader pointed out that nickel demand growth is becoming less dependent on the volatile stainless steel market as the rapidly growing battery and robust Ni alloy and specialty steel segments gain market share.

Mr. Jouin said that nickel demand in batteries increased by 43% in 2018 to 150Kt Ni, of which greater than 40% were used for batteries powering pure/ hybrid electric vehicles. Based on Glencore forecasts, battery demand will grow a further 40% to 206Kt Ni, which includes more than 45% allocated for batteries powering different markets outside of electric vehicles. The rapid growth is primarily driven by an industry-wide shift to higher Ni containing Li-ion compositions which facilitate increased battery performance (higher energy density).

The fact that this development is also evident in markets other than electric vehicles such as power tools and personal electronics is under-appreciated, Mr. Jouin said.

He cited the need for new supply especially if the demand for electric-vehicle driven batteries exceeds conservative expectations. He stressed that demand for nickel is much stronger than most market participants recognize and the accumulated deficit is much higher than people currently think.



Speaker 2:
Mr. Ian Hiscock

*Head of Consulting
(Southeast Asia),
CRU Consulting Group*

Mr. Hiscock believes that in the next five years, stainless steel will still be the most important driver of global nickel demand. In 2018, batteries account for just 4% of nickel demand. However electric vehicles will be cheaper than internal combustion engine vehicles within the next few years. This means increased requirement for a lot of Li-on batteries.

Mr. Ian Hiscock gave a brief summary on the different components of nickel value chain from nickel ores to intermediaries sector, to nickel products and finally, to end-user sectors. He discussed the factors that drive the changes in the nickel value chain. These include key environment policies affecting nickel production and processing, changing dynamics in the value chain, geo-politics, and the rise of the e-vehicles as “new market”.

Mr. Hiscock presented the current developments in nickel industry in Indonesia and stressed how a lot of activities are happening there in terms of nickel production, establishment of stainless steel production plants, and updates regarding nickel pig iron (NPI) production plants and high pressure acid leach (HPAL) plants. In fact, global nickel supply growth, which rose from over 2100 kt in 2018 and projected to rise to almost 2800 kt in 2023, is driven largely by Indonesian NPI.

Mr. Hiscock believes that in the next five years, stainless steel will still be the most important driver of global nickel demand. In 2018, batteries account for just 4% of nickel demand. However electric vehicles will be cheaper than internal combustion engine vehicles within the next few years. This means increased requirement for a lot of Li-on batteries.

The expert from CRU discussed issues in relation to HPAL plants, which use heat and pressure to remove nickel and cobalt from the ores. The success of new HPAL facilities will have significant impact on the long term price for nickel and the ability to address the growing demand from the nickel industry worldwide. Mr. Hiscock, however, pointed out that a lot of uncertainties have revolved around HPAL facilities including high capital expenditures and technical problems during operations. At an average, HPAL projects have taken around four years to operate at 80% of capacity. Mr. Hiscock said successes and failures are to be expected from a lot of Indonesian’s new HPAL projects.

In closing Mr. Hiscock explained that nickel price forecasting is harder compared to other commodities due to 1) technology risks (i.e., HPAL operations) and 2) market volatility and uncertainties on end-user industries such as e-vehicles. Planning in the nickel industry therefore requires tools that would take into consideration these factors.

Speaker 3:
Mr. Roy Huang

Ningbo Lygend Mining Co. Ltd



Mr. Roy Huang from Ningbo Lygend Mining, a mineral processing and trading company, gave a presentation which aimed to help the audience understand nickel processing, as well as the developments affecting the industry.

The world's proven nickel metal basic reserves are 81 million tons. Out of this, 60% is nickel oxide and 40% is nickel sulfide ore. The Philippines has more than 3.1 million metal tons of nickel, which is generally exported to other countries unlike in Indonesia where the extracted nickel mines are further processed. Most of nickel resources in the Philippines are laterite nickel ore, which often are processed using RKEF (higher grade) or HPAL (low-grade).

Mr. Huang described the physical and chemical properties of nickel which make it essential in hundreds of thousands of products. Its biggest use is in alloying - particularly with chromium and other metals - to produce stainless and heat-resisting steels. He discussed the complex process of laterite nickel ore processing including upstream, midstream, and downstream processes and byproducts. 'First use' of nickel is defined as the conversion of nickel products into intermediate products, which form the basis for nickel-containing end-use products. In almost all cases, these first-use products undergo further processing before they are ready for use. Among the downstream products of nickel processing are stainless steel (73%), non-ferrous alloys (10%), plating (6%), alloy steels and castings (4%), and batteries (4%).

Key developments impacting nickel industry include the surge in e-vehicle demand, stainless steel consumption (the annual growth of which slightly reduced from 5.5% CAGR to 3.5% CAGR), and increase in the use of scrap stainless steel from 16% in 2016 to 27% in 2018.

Mr. Huang believes that while there are major differences in terms of the quality of nickel ore and enabling landscape between the Philippines and Indonesia, the future of nickel industry in the former is still positive. For him, as long as there is demand for reserves, there remains a possibility for the establishment of more HPAL facilities in the Philippines. NOTE: At present there are only 2 HPAL nickel processing plants in the country.



OPEN FORUM

Moderated by Mr. RJ Ledesma

Celebrity Host and Entrepreneur

The following points were raised during the panel discussion:

Nickel pricing and global market

Mr. Huang said that prices are dictated by nickel supply and demand. Indonesia has the upper hand, presently, as nickel price is dependent on how much they can export. Another key factor in nickel market is geo-political. Cited as examples were the One Belt One Road Policy of China which led to infrastructure development in Central Asia; shifting of manufacturing and heavy industries inland; and rise of nationalism and protectionism which has profound effect on trade routes and flows; emerging strategy in relation to sourcing materials for batteries in Southeast Asia; among others.

Moving up Philippine nickel in the value chain

Mr. Jouin said that while the Philippines has abundant nickel resources, its ores are of lower grade than the average. Industry development requires higher investment to move the industry from exports to local processing. The growth of NPI processing is anchored on the cost of power in the host country. But since power cost in the Philippines is relatively high, it remains to be a challenge for NPI processing to fully take off. Moving up the value chain requires government support through policy reforms and tax policies.

The resource persons agree that safety and sustainability are critical elements in mineral processing. Mr. Hiscock cited Coral Bay and Taganito as examples of successful mining practices specifically on HPALs. These are sustainable best practices that other companies can adopt.

Recommendations recrafting the industry road-map

Mr. Jouin urged the industry players to ensure that the road-map discussion will translate into actual actions. Local nickel mining players need to collaborate to help policy makers understand and appreciate the positive impact of the industry to economic growth. It's important that policies are clear and stable.

For his part, Mr. Hiscock underscored the need to get the buy-in of as many stakeholders as possible. Amid conflicting interests and different opinions, the industry should be able to find a common ground towards a common vision. The road-map should also be supported by evidence-based data so that the costs and benefits will be clear to all stakeholders.

Mr. Huang said that there is a need to counter anti-mining position by showing the value of social responsibility and environmental rehabilitation. It is a challenge for the industry players to promote responsible and sustainable mining, and to convince policy makers that both can be achieved through the right balance.



INDUSTRIES UNITE: COLLABORATION FOR TOMORROW'S WORLD

Ceremonial Presentation of the Memorandum of Understanding between Philippine Nickel Industry Association (PNIA) and Partners

MOU BETWEEN PNIA AND EVAP

The PNIA Board Members led by PNIA Chairman Alcantara, PNIA President Bravo, and PNIA Chairman Emeritus Pimentel, The Nickel Initiative Conference 2019 Chair signed the MOU. The Electric Vehicle Association of the Philippines (EVAP) was represented in the MOU Signing and Presentation by its President, Mr. Edmund Araga, Vice President Mr. John Lee, and other officers.

Under their MOU, the PNIA and EVAP agree to collaborate on the development of nickel industry program and explore the conduct of research program on nickel industry, in collaboration with an academic partner. Likewise both parties agree to support the corporate social responsibility of each organization.

MOU BETWEEN PNIA AND ECCP

The PNIA Board Members led by PNIA Chairman Alcantara, PNIA President Bravo, and PNIA Chairman Emeritus Pimetel, The Nickel Initiative Conference 2019 Chair signed the MOU. The European Chamber of Commerce of the Philippines (ECCP) was represented in the MOU Signing and Presentation by Mr. Robert Walker and Ms. Dei Cimat.

Under their MOU, the PNIA and ECCP agree to collaborate on the development of nickel industry program. Both parties shall encourage deeper cooperation on policy formulation on issues impacting the parties' member companies and industries. They also agreed to support the corporate social responsibility of each organization.



NICKEL MINING CAN BE SUSTAINABLE

Dr. Bernardo M. Villegas
*Economist and Professor
University of Asia and the
Pacific*

To move forward from such crisis, the renowned economist emphasized the need for regulators to do a “balancing act” in order to address different societal objectives. He called on both public and private sectors to attain appropriate balance among the objectives of income growth, foreign exchange earnings, employment generation, poverty alleviation, and environmental protection.

“We have to look at all possible means to bring down the poverty incidence from 21% to 14%. That’s the objective. If they keep on harassing mining, I don’t think they will ever even attain 20%,” said Dr. Villegas.

At the start of his speech, Dr. Villegas said that the Philippine mining industry has gone through “a self-inflicted environmental and political crisis over the last two or three years” due to 1) some mining firms’ irresponsible acts that adversely impacted the environment, and 2) decisions made at the early years of the Duterte administration that “exaggerated some mining companies’ violations of rules.” According to him, said decisions had completely disregarded the many positive contributions of the mining industry to income growth, poverty eradication, and employment generation.

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MINING AND POVERTY REDUCTION

“The legitimate concern for sustainability of the environment must be tempered with the need to address the serious extreme poverty situation in mineral-rich territories,” Dr. Villegas said. For him, mining can help provide much needed opportunities for the poorest segment of the Philippine population, many of whom live in the boondocks, and have very little to zero opportunity to attain a certain decent standard of life.

Unfortunately, the Philippines stands out as a sore thumb in Southeast Asia as the country with highest poverty incidence at 21%. Compare this with Malaysia (zero poverty incidence), Vietnam (7%), and Indonesia (12%).

MINING AND SUSTAINABILITY

Dr. Villegas said there is no question that the Philippine nickel industry is capable of practicing responsible and sustainable mining. He shared stories about some of the sustainability (environment and social development) programs of mining companies in the Philippines and how these have positively impacted communities. He challenged the industry to continue its reforestation programs and other efforts that offset mining footprint with green footprint, as showcased in Palawan.

Using the economic lens, Dr. Villegas said reforestation programs aren't only good for the environment but also have positive economic impact. Reforestation gives birth to an emerging downstream industry – agro-forestry. It creates job opportunities for community members and allows mining companies to engage communities for various greening initiatives. Increase supply of fruit products from reforestation programs can help slow down inflation as “middle-income households increasingly turn to fruits and vegetables for healthier diets.”

Dr. Villegas recommended for the Philippine nickel industry to go further and integrate sustainable and responsible policies in its core business. The following are some of his suggested methods*:

- Developing a road-map specific to incorporating sustainability into its operations
- Crafting and abiding by industry-specific and company-specific codes of conduct
- Putting in place “disciplinary measures” for mining member-companies who refuse to sign and adhere to the code
- Learning from sustainability guidelines from international institutions e.g., World Bank Disclosure Policy, Global Reporting Initiative, and Extractive Industry Transparency Initiative (EITI)
- Communicating sustainability guidelines internally and training staff on it
- Stakeholder dialogue and listening to feedback from civil society
- Monitoring and verification to assess compliance of companies to sustainability mechanisms

He challenged all the stakeholders from government and the industry itself to work together and have the political will to commit themselves to a continuing dialogue on sustainability practices. “There is no substitute to a tripartite cooperation among the government, mining companies and civil society,” he said.



Q& A WITH DR. VILLEGAS

Facilitated by Mr. RJ Ledesma
Celebrity Host and Entrepreneur

Highlights of the Q&A with Dr. Villegas.

PHILIPPINE ECONOMIC PROSPECTS

The Philippines is one of the emerging markets that has established macro-economic stability. Dr. Villegas is optimistic about the economic prospects of the Philippines in the next 10 years given robust infrastructure and healthy fiscal policies that have been established since years ago. He, however, discouraged the following: 1) establishing the wrong kind of nationalism or a mindset of protectionism which often discourages foreign investments, and 2) falling into demographic suicide which could lead into the country's inability to take care of its younger population in the years to come. He also believes that the government should balance international relationships, and establish partnerships not only with China but also with other countries such as Japan.

NICKEL INDUSTRY ROAD-MAP

Being the second top nickel producer globally, Philippines plays an important role in the Asian region and the world, especially in the advent of Industry 4.0. Dr. Villegas advised the industry to do an input-output analysis of the multiplier effect of the nickel industry not only in terms of direct fiscal contribution but also on what they are able to do for their host communities. He advised industry players to utilize data analytics as they endeavor to better understand the nickel supply chain. Multiple institutions can help the industry craft the road-map, particularly in the research aspect.

CLOSING REMARKS

Mr. Isidro C. Alcantara, Jr.
*Chairman
Philippine Nickel Industry
Association*



Mr. Isidro C. Alcantara, Jr. said that the Nickel Initiative 2019 enabled PNIA and nickel stakeholders to initiate and open the discourse on how the Philippine nickel industry can level up its growth and better contribute to the global nickel value chain.

He expressed optimism that the event is only the beginning of the association's journey towards boosting the upstream and downstream nickel industries. In particular, he is hopeful that the partnership that PNIA has forged with EVAP and ECCP will inspire stakeholders to also work with them.

Mr. Alcantara said that the nickel industry will rise to the challenge of globalization and industrialization and in the process, would need a more strategic and long term approach. This can be embodied through a road-map to be developed through collaboration with the public, private, and academic sectors. He urged industry players and partners to consolidate their strengths in pursuit of an industrialized and sustainable economy.

He thanked PNIA's partners and sponsors and everyone who helped made the event successful.

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