

EDITORIAL

Welcome to our fourth GAINTM Newsletter! JIM O'BRIEN, GAIN Convener, UEPG Honorary-President



The GAIN Meeting in Barcelona in May 2018

Looking back on 2018 – a very positive year for GAIN

2018 was an extraordinary year of progress for GAIN. The biennial GAIN meeting, kindly hosted by our Spanish and Catalan colleagues, was a resounding success, with a record attendance from five continents. India and Japan were present for the first time. Everyone shared experiences and, as always at GAIN meetings, everyone learned.

This first contact with India led to a conference run by the Mining Engineers Association of India (MEAI) in Hyderabad in August, the theme of which was the substitution of natural sand by manufactured sand; as a result, the MEAI now wishes to join GAIN to assist with that important transition. In parallel, the Aggregates Manufacturers' Association (AMA) of India is now recruiting aggregates producers as members. India is the second largest producer of aggregates globally (after China), and so is a very important new GAIN member.

A presentation on GAIN at a cement conference in October led to an introduction to Stevin Rock, a major producer and exporter of aggregates in the United Arab Emirates; now Stevin Rock is the first very welcome GAIN member from the Middle East.

Also in October, the Spanish Federation held its triennial conference in Santiago de Compostela, an opportunity to attract new FIPA members into GAIN from Central and South America. Towards the end of 2018, through ongoing networking, exciting first-time contacts were established with

aggregates associations in Mexico (ASEC) and Malaysia (MQA) and both of which are now very pleased to join GAIN.

In December, GAIN members were welcomed at the China Aggregates Association (CAA) in Shanghai. That occasion re-affirmed the tremendous enthusiasm that exists in GAIN that knows no geographical or political borders. GAIN member countries now represent 70% of global aggregates production of 50 billion tons, of which we can be proud.

Looking forward to 2019

I look forward to ongoing GAIN activities and exchanges as we move into 2019. I hope we will attract further new members during the year, particularly from Asia, Africa and Latin America. We also begin to look forward to the next biennial GAIN meeting, which will be kindly hosted by the Argentine association, Federación Argentina de la Piedra, in Córdoba in November 2020. As GAIN enters its second decade, it may be time to brain-storm future strategy together, and I will welcome your suggestions. As first steps in that direction, the "GAIN" logo and acronym has been trade-marked, and a website at **www.GAIN.ie** has been developed. GAIN, I believe, has unique potential for wider exchanges of industry expertise.

In this newsletter you will find a fascinating selection of GAIN member stories from across the globe. It is remarkable, that despite economic turbulence in some countries, there is a positive trend in global production volumes. Very few industries

can be as confident of a continued growth in demand in the next decade. Therefore I am convinced that our aggregates industry really has a great future and that GAIN will help guide us towards that destiny.

I wish you all a very healthy, safe, sustainable and GAINful 2019!



ASIA

News from China

HU YOUYI President of the China Aggregates Association (CAA)





The 5th International Aggregates Conference in Shanghai

In December, the China Aggregates Association (CAA) held its 5th International Aggregates Conference in Shanghai, China. There was a record attendance with 500 representatives from many provinces and municipalities in China, as well as aggregates producing companies and major machinery producers, as well as experts from academic and other learned institutions.

In his opening keynote speech, President Hu Youyi focused on how the "Chinese Aggregates Industry is entering a new Era to Integrate Development and Build a new Future Together". He described how the rapid modernisation of the national infrastructure, coupled with planned closure of outdated quarries, had by November 2018 lead to a national shortage of aggregates, which in turn saw panic buying and increased aggregates prices. This has led to a welcome much greater focus on ongoing 20bnt national aggregates supply; industry turnover is now estimated at over 2 trillion RMB, coupled with a transportation cost of 500m RMB, making aggregates about 2.5% of national GDP. In 2017, some 14 trillion RMB was invested in national infrastructure, now one of the most important drivers of economic growth in China.

In parallel, the industry was making unprecedented steps in modernisation and "greening" of the whole quarrying process to such an extent that China was now becoming the global best practice standard for the aggregates industry. In fact the industry was moving to an "Aggregates 4.0+" state of development, where quarries are becoming ecological parks, making the most efficient use of all resources, including recycling of demolition materials, where cleverly restored quarries could feature tourism, leisure and vacation. The CAA mantra is now therefore – *let's build the future and benefit mankind together!*

The conference agenda then featured 51 presentations, both from Chinese specialists and international guests. There were highly impressive Chinese presentations on recent major projects, including the Hong Kong-Zuhai-Macao bridge, the Maritime Silk Road and Beijing's new international airport, as well as many important innovations by machinery suppliers.

There were international presentations from India, New Zealand, United Arab Emirates, Canada and Europe, which clearly demonstrated the warm appreciation of GAIN by the CAA.

The final day focused on the CAA Annual Meeting, to which GAIN guests were also invited.





The strong GAIN representation in Shanghai included: Dirk Fincke, Wayne Scott, Ramesh Bhatawdekar, Jean-François Milian, George Siu, Jim O'Brien, President Hu Youyi, Brent Morrey, Pawel Kawalec, Sanjay Nikam, Omprakash Gupta and Devishankar Maru.



At the CAA Annual Meeting, there was a formal signing ceremony between "Redouble and LeiMeng Machinery" to create a special cooperation as a new future for green quarrying



Special CAA awards were made for "Contribution to International Communication and Cooperation" to Jim O'Brien & Ramesh Bhatawdekar



News from India





RAMESH BHATAWDEKAR

Life Member MEAI, International Fellow of the University of Technology, Malaysia, International Council Member of AMA





SANJAY NIKAM

Director of the Aggregates Manufacturers' Association (AMA) of India

The rapidly-growing Aggregates Demand in India

Globally, India is the second largest aggregates market after China, and it is now the fastest growing and structurally transforming aggregate market in the world. In the absence of official statistics, the estimated size of market is about 5 billion tons, with the overall aggregate market volume growth being projected at a breathtaking 11% a year. In particular, the market demand for manufactured sand is expected to grow by 70% by 2020, predominantly driven by the substitution of river bed sand by manufactured sand.

	2018 million tonnes	CAGR%
Gravel	1600	12%
River Sand	710	-3%
Manufactured Sand	720	70%
Crushed Stone	2050	11%
Total	5080	

The MEAI National M-Sand Seminar on 30th August, 2018 at Hyderabad

MEAI (the Mining Engineers' Association of India) has 5,000 members and 20 chapters across India, and is headquartered in Hyderabad, in the newlydesignated Telangana State. Telangana State is a progressive state which is utilizing Manufactured Sand (so-called M-Sand) for more than a decade for construction of various infrastructures. The MEAI has recognised the wider need to launch a strong national campaign, in conjunction with the Government and State authorities, to switch the ecologically-undesirable extraction of sand from beaches and river-beds to manufactured sand produced in responsibly-operated quarries and pits.



At the MEAI M-Sand Conference in Hyderabad were (from left to right): Mr P Prakesh Pai (MD, Puzzolana Machinery Fabricators, Hyderabad), Mr Susheel Kumar (Director of Mines & Geology, Govt of Telangana, Chairman MEAI Hyderabad Chapter), Mr Arun Kumar (Secretary (Ret'd), Gov't Ministry of Mines), Mr S Subash Reddy (Chairman Telangana State Mineral Development Corporation), Dr G Malsur (Vice-Chair and MD, Telangana State Mineral Development Corporation), Mr AK Kothari (President MEAI India) and Jim O'Brien (GAIN Convenor)

Hence, a national seminar on "M-Sand: Future Perspective and its sustainability" was organized by the Director of Mines and Geology, Telangana State and Mining Engineers' Association of India, Hyderabad Chapter in August 2018. Some 300 delegates attended, and overseas delegates included Jim O'Brien, GAIN Convenor, Jaume Puig i Canal from Spain and George Siu from Hong Kong.

BRV Susheel Kumar, Director of Mines & Geology, explained the Telangana State Sand Policy on Regulation of River Sand and Initiatives in encouraging crushed stone sand as alternative to river sand. The State Government itself is simultaneously encouraging usage of manufactured M-Sand as an alternative to river sand. In different states of India, the price of sand varies from 3.3 to 33 USD per ton. The progressive Telangana State Sand Mining Policy 2014 has been accepted by the Government of India and also other Indian States.

Dr. G. Malsur, TSMDC, presented its history of extraction and sale of river sand and new strategy for production of M-Sand. Prof R. Pavanaguru provided his views on the geo-scientific evaluation on M-Sand, its perspective and sustainability. Prof K. Srihari emphasized how M-Sand usage will provide an eco-friendly environment. S.N. Srinivas Sarma explained the role of M-Sand in the Hyderabad Metro Rail Project being constructed by L&T. Overall, the conference provided an important impetus for the industry to move from river/ beach sand to manufactured sand.

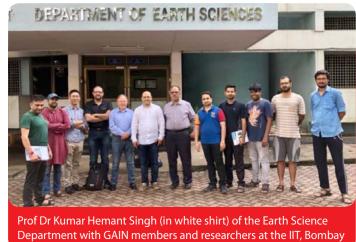
GAIN members also visited the Indian Institute of Technology, Bombay, which is premium educational institution in India which earned the highest income from R&D during last year in India. Prof. Dr. Kumar Hemant Singh of Earth Science Department explained the research being done at his department, and he would be delighted to receive GAIN collaboration.

First steps in forming an aggregates association

The Indian Aggregate Industry is currently very fragmented with 12,000 family businesses with small quarries and low capacity plants. There are a few local associations in scattered clusters for addressing local issues but there had hitherto lacked a national level aggregate association for raising the standards of the Indian aggregate industry.

Inspired by GAIN members, and as a result of the MEAI Conference on M-Sand, two parallel and important initiatives have been taken to form a national level aggregates association. Sanjay Nikam has taken the initial steps in forming the Aggregates Manufacturers' Association of India (AMA). Several producers have already committed to joining and from the beginning of the year 2019, member registration will start. Just recently, the MEAI has also applied to be a member of GAIN. Both initiatives are very important steps, and it is proposed to accept both AMA and MEAI as GAIN members pending the evolution of a national association which represents all aggregates interests.





GAIN World Map



News from Japan





ISAMU YAMAMOTOSecretary-General,
Japanese Crushed Stone
Association (JCSA)

Introduction to the Japanese Crushed Stone Association (JCSA)

The JCSA is an aggregates producers' association in the quarrying industry, representing 800 of the total of 1300 operating companies in all of Japan. The total national production of crushed stone aggregates from quarrying is 350 million tons/year and JCSA is the biggest aggregate producer association. The JCSA head office is in Tokyo and there are 9 regions and under these are 47 sub-districts. There are other associations representing Japanese sand and gravel producers, as well as light-weight aggregates producers and slag (manufactured) aggregates producers. Taken all together, the total aggregates production in Japan is 500 million tons/year.

The JCSA National Conference in Yokohama City in October 2018

The JCSA held its "Crushed Stone Forum 2018" Conference (also the 45th National Crusher Technology Convention) at Kanagawa Prefectural Hall in Yokohama City on October 10-11, with 500 in attendance. This was the largest attendance so far, thanks to the change of location to Yokohama City. During the conference, there were 29 events, comprising 2 keynote lectures, 3 research grant project reports and 24 technical lectures. In addition, about 60 people in total attended two production site visits held on October 12.



The large attendance at the JCSA conference in Yokohama City in October 2018

The first day was chaired by the head of the Technical Safety Subcommittee. In the opening ceremony, the JCSA President, Koichi Nishimura, pointed out that natural disasters were occurring frequently throughout the country in recent years, including torrential rains in northern Kyushu in July and heavy rain in western Japan in July of this year. Similar disasters indeed occurred in the past, such as Isahaya torrential rain in 1945, flood damage in Nagasaki University in July of 1976, where large damage occurred. As a result of these disasters, the lessons learned have prompted the preparation of disaster prevention plans, but disaster prevention measures always had to be adapted to the particular circumstances.

Despite halving of the national budget compared to 20 years ago, the crushed stone industry is doing important work which has great significance for disaster mitigation, building construction and the safety of the citizen. In parallel, it is necessary to promote business while cooperating with the improvement of the environment where the employees can work and live safely and securely. Hence the aggregates business must move forward in full cooperation with the broader needs of its stakeholders and society.

Next, after the head of the Technical Committee and the Safety Committee expressed appreciation for the high participation in the forum, he indicated that this conference offered an excellent program both on technical and management aspects of the industry. This conference was building on the successes of previous conferences in Morioka City and Kobe City in the last 5 years; holding it outside of the metropolitan area has wide appeal. In addition to streamlining and improving the efficiency of business activities of each member company, the JCSA will make every effort to also raise awareness of new technology. Mr Kensuke Mizuno, a safety manager of the Industrial Occupational Accident Prevention Association of the Construction Industry, then gave a lecture on "Preventing occupational accidents in the quarrying industry".

After the lecture, the party was moved to Rose Hotel Yokohama and a social gathering was held. First of all, the awards ceremony was held, and then the President outlined plans to strengthen the management and efficacy of the JCSA. The second day of the conference featured a range of technical lectures on aggregates and concrete.

On the third day there were tours to the Tokyo Metropolitan Government Miyama Works, the Yoshimura Stone and the Hoso Mining Co. There was a parallel tour of the Hatsukari Mining Plant of Koshu Crusher Co., Ltd. and the Yamanashi Prefectural Visiting Center. In addition, the tour also visited the production site adopting the shaft method at Koshu crushed stone, and the construction of the Linear Central Shinkansen.

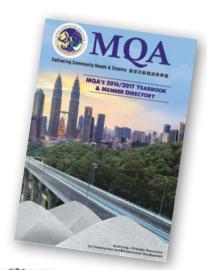
Overall, the 2018 JCSA conference was a big success and will strengthen the industry going forward. The JCSA also has benefitted greatly from its participation in the GAIN meeting in Barcelona in May 2018, for which invitation it was extremely grateful.

News from Malaysia





DATO' YAP SOON HUAT President 2018-2019 of the Malaysia Quarries Association (MQA), also Chairman of the Selangor/Kuala Lumpur Branch.



Introduction to the Malaysia Quarries Association

Through the kind offices of Mr Ramesh Bhatawdekar, we have recently been introduced to the Malaysia Quarries Association (MQA), based in Kuala Lumpur, which will be very welcome to join as another member of GAIN.

MQA started as the Selangor Quarries Association in 2001, and it has now expanded geographically covering most of West Malaysia, or Peninsular Malaysia, which stretches from the southern border of Thailand to Singapore in the south. It also has a presence in Sarawak in Eastern Malaysia.



In total, MQA membership now includes 275 operating quarries, representing an impressive 80% of the total production in Malaysia. National production is estimated at 70-75 million tons, predominantly of granite and limestone, that being the equivalent to just over 3 tons/capita. It is estimated that 55% of aggregates go to infrastructural and commercial developments, 27% to readymixed concrete, 10% to blocks and precast and 8% to asphalt paving. It is seeking to minimise use of natural sand by moving to manufactured sand (called M-sand).

Most major quarries are located near the urban centres, though that is creating new challenges of encroachment around those quarries as the cities expand. It is that greater proximity to society that has encouraged the industry to make major progress in the sustainability of its extraction, processing and transport. Equally it has brought focus on the need for planning of access to deposits in future quarrying zones and prevention of sterilisation of these resources through poor land-use planning.





As part of this licence to operate from society, there is now much greater focus on restoration and after-use of worked-out quarries.



Example from being a quarry in operation



To later becoming an urban feature

MQA operates under the logo of "delivering community needs and dreams". It communicates with government and other organisations, seeking ways to improve industry practices and workforce training, such as in this shot-firer course at Batu Tiga Quarry.



MQA views membership of GAIN as a great opportunity to help move the Malaysian industry to world-class standards, and thereby to enhance its image at home and abroad.

MIDDLE EAST

News from the United Arab Emirates





JEAN-FRANÇOIS MILIAN

Exploration Manager for Stevin Rock LLC, a company owned by the Government of Ras Al Khaimah in the United Arab Emirates (UAE)

GAIN is particularly honored to welcome Stevin Rock LLC as its first member from the Middle East Region.

Stevin Rock is one of the largest quarrying companies in the world with a current production capacity from three sites of over 80 million tonnes per year of limestone, dolomite and gabbro for the construction industry. Its product range comprises fine to coarse aggregates for asphalt, readymix plants, land reclamation, etc, armor rock for sea defense/breakwater marine projects as well as raw materials for the cement, steel and mining industries. The Company is wholly owned by the Government of Ras Al Khaimah, one of the seven Emirates of the United Arab Emirates (UAE), has over 3,500 employees and has operated and continuously grown for over 40 years.

in the UAE estimated at around 100 million tonnes per year, mostly for the local market, extracted from a total of 92 guarries of gabbro, limestone and dolomite including the world-class Khor Khuwair Quarry operated by Stevin Rock and sister company RAK Rock with a production capacity of over 60 million tonnes per year of high-quality limestone. Stevin Rock has supplied rock material for world class projects in the UAE and Gulf countries including the iconic Burj Khalifa, the highest building in the world at 828 m, Palm Jumeirah and the World islands in Dubai, the Dubai Mall, the Dubai metro, port constructions and expansions in the UAE, Kuwait, Qatar and Iraq.

Stevin Rock contributes to nearly half of the total aggregates production

The Company is using the latest technologies and state of the art equipment and has been approved to major Management System Standards such as ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007; Stevin Rock has also complied with the requirements of the Framework Standard for Responsible Sourcing BES 6001: Issue 3.0

The crushing and screening system at Stevin Rock has the flexibility to produce crushed aggregates/crushed rock of any size range in order to meet the specific requirements of its clients. General specifications of crushed aggregates are as per BS/ASTM standards.

Stevin Rock through a right balance between strong economic performances, protection of its environment and great care for its employees contributes to an effective and sustainable development of the Company within the surrounding communities. Environmental control and protection measures have accounted for as much as 10% of the Company's capital expenditures in recent years.

Stevin Rock is a very welcome new member of GAIN.





NORTH AMERICA

News from the United States





MICHAEL W JOHNSON President and CEO of the National Stone, Sand & Gravel Association (NSSGA)

Congress Could Focus on Infrastructure – An Update on the Mid-Term Elections

Following the November mid-term elections, the Democrats will be in control of the U.S. House of Representatives in 2019 and Republicans will hold onto a majority in the U.S. Senate. In fact, nearly one-fifth of Congress will be new to Washington, D.C., when they take office in January. There will be new chairs and members of congressional committees that have oversight of regulatory agencies or control the funding for infrastructure, and NSSGA and member companies plan to educate them on the value of our industry to rebuilding our aging infrastructure and improving the U.S. economy.

There are also some familiar faces taking leadership positions.

In the House, Rep. Peter DeFazio, D-Ore., is first in line to chair the Transportation and Infrastructure (T&I) Committee under the new Democratic majority. NSSGA has a long-standing, positive working relationship with the expected chairman and the new majority committee staff. A long-time advocate of increasing funding for the Highway Trust Fund, DeFazio has vowed that a top priority will be making the Trust Fund solvent. The ranking member of the T&I Committee could be Rep. Sam Graves, R-Mo., who chaired the Subcommittee on Highways and Transit in the most recent session of Congress.





DeFazio, Graves and Democratic leaders are likely planning to pursue a major U.S. transportation and infrastructure measure in the 116th Congress. Rep. Nancy Pelosi, D-California, has said it may be something Democrats can do with the Republican president. "One of my things is build, build," she said at an October 22 event hosted by CNN.

career-long support for infrastructure.

In fact, NSSGA has heard of bicameral discussions on an infrastructure bill taking place this Fall and will continue to push for a substantial and long-term bill. If Congress can properly fund infrastructure, which it is called on to do, then states, counties and municipalities would not have to raise their own funds through increasing the user fees on gasoline. The federal user fee on motor fuel sits at 18 cents per gallon, just as it did in 1993, and states have taken it upon themselves to fix aging roads and bridges.

One thing that's likely to affect infrastructure costs indirectly in 2019 is the tariffs on imported steel. The tariffs imposed this summer by the Trump administration cover machines and equipment parts used in aggregate production, specifically ones that sort, screen, separate, wash, crush and grind aggregates. Although the annual rate of seasonally-adjusted construction spending grew more than 5 percent to \$1.329 trillion from January-September 2018, the tariffs remain a concern for NSSGA.



Capitol Hill, the central focus of US politics and NSSGA lobbying



Rep. James Comer, R-Ky (centre), meeting NSSGA members during the Legislative & Policy Forum

Aggregates Production and Consumption grow in 2018

According to the latest figures from the US Geological Survey, 1.7 billion metric tons of construction aggregates were produced and shipped for use in the United States in 2018 from January through September. That amounts to a welcome 5% increase from the same period of time in 2017.

Regulatory Developments on Water Discharges, RCS and Endangered Species

On the regulatory front, the U.S. Environmental Protection Agency (EPA) is expected to issue a new proposed rule to replace the 2015 Waters of the U.S. Rule (WOTUS) before the end of 2018. NSSGA members strongly support the administration's effort to improve rules like WOTUS, which have a direct impact on the availability and costs of materials needed for vital infrastructure projects. Through comments and testimony at hearings, NSSGA and member companies have made the risks of an unclear rule apparent to regulators and legislators alike.

NSSGA opposed the 2015 WOTUS rule through public policy advocacy. The 2015 rule would have allowed the federal government to regulate dry streambeds and isolated wetlands in a radical expansion of jurisdiction over waters that have little or no connection to flowing streams and rivers. We look forward to reviewing the rule when it is released.

The Mine Safety and Health Administration has taken no further action on a respirable crystalline silica rulemaking in 2018. NSSGA continues to advocate for science-based research and continues to educate policymakers regarding the need to improve the accuracy of analytical labs. Objective evidence demonstrates that many commercial laboratories that analyze workplace air samples do not consistently provide the analytical accuracy for 50 micrograms per cubic meter over an eight-hour work shift.

With regards to the Endangered Species Act, NSSGA continues to support modernized implementation and improvements to its efficiency and effectiveness. NSSGA commented in support of clarifying numerous definitional changes, using economic studies in rulemaking, and following the same criteria when listing and delisting species. NSSGA previously advocated that unoccupied areas should not be considered the critical habitat of a species, which was reflected in the proposed changes. NSSGA also supports programmatic changes to the consultation process, since aggregates operators have faced unreasonable delays on projects stemming from bureaucratic inefficiencies.



NSSGA members meeting with Rep. Bill Johnson, R-Ohio, during the 2018 Legislative & Policy Forum

News from Canada – Ontario



NORMAN CHEESMAN Executive Director, Ontario Stone, Sand & Gravel Association (OSSGA)

Ontario is Open for Business – Untangling a Labyrinth of Red Tape

The Province of Ontario is "Open for Business", according to our new Premier, Doug Ford. After 15 years of a Liberal party in Ontario, Ford's Progressive Conservative government was elected on a populist platform of decreasing taxes, eliminating the Federally imposed carbon tax, and most importantly (from OSSGA's perspective),



increasing efficiencies by making a serious attempt at rationalizing some of the more than 397,000 regulations that currently exist in the Province of Ontario. OSSGA is currently preparing a comprehensive Red Tape Submission in an attempt to untangle the mess.

Of primary concern is the duplication and inefficiencies that create complexity and barriers to investment. In many instances during the licensing and zoning application processes there can be as many as five government Ministries and/or their agencies, reviewing technical reports such as hydrogeology or air and noise studies. OSSGA and its members appreciate and support the need to properly engage in these studies to ensure aggregate pits and quarries are sited and operated in an environmental responsible manner; however, overlapping studies only serves to increase costs and cause further delays.

Campaign for better Access to Resources near the major Urban Areas

Our second area of focus is on the legislative and policy decisions that now hamper both close-to-market aggregate and future growth in Ontario. The Provincial Plans recognize the intense growth that Ontario is experiencing (population growth of 30% in the next 25 years is projected) and call for infrastructure investment of more than \$190 billion.



Restrictions on the availability of close-to-market aggregate will make it much more expensive and environmentally unfriendly. This lack of understanding of the interconnectedness of close-to-market aggregate and growth is our focus.

The Kelso Quarry Restoration Project

One of the most crucial times in the life of an Ontario pit or quarry occurs once aggregate extraction is complete. That's when the site must be rehabilitated to a final land use compatible with the surrounding landscape.



Norm Cheesman being interviewed at the Kelso Quarry Park in Milton, Ontario, the winner of this year's Bronze Plaque Award. It is an excellent example of rehabilitation, now a scenic recreational park recognized and designed as part of UNESCO's World Biosphere Reserve. It is the result of years of hard work and a unique collaboration between the quarry operator, the Municipality, Conservation Authorities, and various government agencies.

News from Canada – Alberta





JOHN ASHTONExecutive Director, Alberta
Sand & Gravel Association (ASGA)

Education and Outreach Program wins ASGA's inaugural Award of Excellence

The Alberta Sand & Gravel Association (ASGA) recently introduced the *Award of Excellence* to recognize outstanding examples of stewardship, community relations and operations from aggregate producers in Alberta. Being introduced to members at the annual general meeting in 2017, the first Award of Excellence was awarded to Lafarge's Calahoo Pit earlier this year.

Although Lafarge has had its long-term groundwater monitoring program in place since 2001 and actively communicates with nearby residents, they decided to team up with the Northern Alberta Institute of Technology in Edmonton (NAIT) and Sturgeon Composite High School.

As part of NAIT's field school, the students toured the Calahoo Pit, got to see active mining operations and reclaimed pits first-hand. They reviewed the geological history and deposition of the sedimentary layers using cross sections, see exposed pit faces and stratigraphy. Lafarge also set up summer field-work placements for students at NAIT. The NAIT Geological Technology program provided a minimum two-week summer placement for its students, and these resulted in full-time work for some of NAIT's graduating students.



Bill Gowdy, Lafarge's Environment & Public Affairs Manager for Northern Alberta, with the NAIT GeoEnvironmental Class Field

(Photo credits to Andrew Snook, Rock to Road magazine, and Lafarge Canada respectively)



At Sturgeon County Composite High School, Lafarge brought in speakers to talk about the local aggregates industry. These gave presentations on the importance and use of aggregates, reclamation practices, biodiversity programs, and the types of careers available in the industry.

The education and outreach program from Lafarge's Calahoo Pit was the sole winner in this year's inaugural ASGA Award of Excellence. It was chosen over other applications as it was seen as another way to build on positive community relationships, while solving a serious challenge

affecting most aggregates companies, namely, the recruiting and training of its next generation of skilled people. ASGA hopes that after its first year, the Award of Excellence will grow to attract other brilliant ideas from aggregates producers, creating more "good news" stories about our industry.

News from Canada – British Columbia





CAILEY MURPHY
Acting Executive Director,
British Columbia Stone, Sand
& Gravel Association (BCSSGA)

British Columbia Year-End Update

Last year, British Columbians went to the polls and opted for a change from the long reigning BC Liberal Party, voting in a minority BC NDP government, supported by the three elected members of the BC Green Party.

With over a year under its belt, the provincial government has been rapidly advancing its commitments to British Columbians, with an ambitious legislative agenda that has included Environmental Assessment Revitalization, a review of Professional Reliance, changes to Medical Services Premiums, a review of the Labour Code, and a Clean BC climate action strategy.

As such, the BCSSGA Government Relations Committee has been busy working to represent the interests of aggregate producers across the province as government engages with industry on these numerous policy files.





Early in 2018, the GR committee achieved a major success in exempting delivery charges on aggregate materials from PST. The Association's submission made a strong case for the exemption and ultimately it was applied to our sector alone. The Association also made formal submissions and recommendations on the revitalization of BC's environmental assessment process, the development of water measurement and reporting regulations, and finished off with a formal presentation and written submission to the Select Standing Committee on Finance and Government Services with industry recommendations for Budget 2019.

Looking ahead to 2019, we foresee another busy government agenda and increased opportunities for the Association to engage with government and stakeholders.

The Association is also continuing to adapt following the retirement of long-time Executive Director, Paul Allard. We are all thankful to Paul for his many years of services, establishing a solid base on which the Association is well positioned to grow.



As part of the transition, we have invested time and resources into refreshing and building on our communications platforms, developing new resources for the membership, reorienting existing committees and striking new ones to meet the growing needs of the membership.

Priorities for 2019 include growing an engaged membership, creating new opportunities for our Service and Supply members, increased outreach and engagement with communities and stakeholders, developing and sharing new safety resources, and maintaining a high level of engagement with the Province.

We are looking forward to a busy and productive 2019, advocating for a growing aggregate industry that will continue to be the foundation of a healthy and prosperous British Columbia.

News from Mexico





AURELIANO MARTÍNEZ SCHMIDT

Director of ASEC, Nuevo León, Mexico

Welcome to ASEC, the Limestone Extractors' Association

Contact was recently established with ASEC (Asociación Extractores de Caliza), an association representing limestone quarrying in the northern state of Nuevo León in Mexico. ASEC has responded very positively towards becoming a member of GAIN.

ASEC represents at least 15 major quarries in the progressive Nuevo León region of Mexico; the quarries lie, amongst others, in the municipalities of Santa Catarina, Escobedo, García and Allende, which border on the key city of Monterrey.

The origins of ASEC go back to 1970, where previously the quarries were operated by military detachments, which were qualified in the handling of explosives necessary for that task. In 1992, local entrepreneurs of key quarries including Cerro de las Mitras and Sierra San Miguel formalized ASEC as a legal entity. The aggregates production of Nuevo León is now estimated at 40-45 million tons a year, representing about 10% to 15% of the total national production.

The Essential Values and Strong Social Commitments of ASEC

The five key values of ASEC are Unity, Leadership, Sustainability, Integrity and Passion











ASEC very actively supports the interests of its member companies in implementing policies and programs that promote product excellence, corporate social responsibility and environmental stewardship through the following four key pillars:

- Social and Health: Promote education, health, culture and sports in facilities near the quarries and thereby provide integral benefit to local society.
- Environment: Respect the environment and its ecosystem, as well as promoting ecological awareness in all those who work for us.
- Innovation: Promote innovation in production and marketing in our member companies, thereby seeking to add value to both the clients and companies.
- Productivity: Maximise the profits of our member companies through training of its personnel and optimising of the cost base through maximum process efficiency.

These are demonstrated graphically on its website under "Compromiso social" (our agreement with society); two examples of actions under our members' reforestation programs are shown below. ASEC also has some excellent videos on its website at: http://www.asec.mx/videos/





ASEC is focused on forming a National Aggregates Association in Mexico

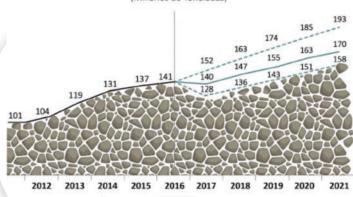
Recently ASEC has been making approaches in the various quarrying sectors of Central and Southern Mexico to initiate the formation of a national aggregates association. ASEC believes that its membership of GAIN will help accelerate the formation of a national association, and GAIN is delighted to assist ASEC towards achieving that important goal.

CENTRAL & SOUTH AMERICA

News from Colombia

Continuing Growth in the Colombian Aggregates Industry

Producción de Materiales de Construcción (Millones de Toneladas)



The demand for aggregates in Colombia returned to welcome growth in 2017 and 2018, with a demand of 170mt/y anticipated in 2021.

The growth is being driven by increased infrastructural development, economic growth and a expanding population.

Fiscal Inequality, a Major Challenge, now being addressed with Success

An ASOGRAVAS investigation in 2016 found that 50% of the aggregates produced in the country is from an informal or illegal source, an astounding figure which translates into a annual loss of €98m in Government tax revenues. ASOGRAVAS therefore in 2017 launched its "Compra Formal, Construye Legall" ("Buy Responsibly, Construct Legally")



campaign which has the support of the Ministry of Mines and Energy, the National Agency for Mining, as well as the Department of Taxation and environmental authorities.







CARLOS FERNANDO FORERO BONELL CEO, ASOGRAVAS, Colombia

The informal sourcing of aggregates, with its poor record of safety and environmental performance, severely impacts both the reputation and competitiveness of the responsible producers. Accordingly, during 2018, ASOGRAVAS has further stepped up its campaign with stakeholder meetings organised in several cities, including Medellín, Cali, Cúcuta, Pereira and Cartagena, in which some 2,500 professionals from all aspects of the construction industry participated. The campaign was also featured in the recent ASOCRETO concrete producers congress, where an impressive video was released; see https://www.youtube.com/watch?time.continue=5&v=filw6QDH3ic

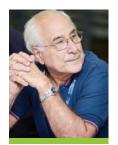
On a very positive note, the National Agency of Mining reported record tax collection in 2017, and this has further encouraged the aggressive roll-out of the campaign by them and ASOGRAVAS. This is proving an excellent best practice to emulate by other GAIN members.



News from Argentina









FEDERACIÓN ARGENTINA

JOSÉ ALFREDO PIZONE

Vice-President of Cámara de la Piedra, Province of Buenos Aires, also President of the national Federación Argentina de la Piedra (FAP)



Economic Turbulence hits Argentine Aggregates Production

In a strong growth phase since 2016, the Argentine production of aggregates had grown almost 40% to 157mt. However in early 2018, an economic crisis suddenly struck, with a halving of the exchange rate of the Peso against the US Dollar, 30% inflation and a 60% increase in lending interest rates. This has had having a profound effect on the construction markets and hence also on aggregates demand, particularly those producers which were purchasing machinery from abroad as part of their growth plans. Hence the aggregates market is now anticipated to decline by 30% to 40% by 2020. However thereafter a return to growth is expected due to infrastructural development needs and housing demands.

Association Lobbying Activities

As a result of this economic turbulence, the two regional associations, CEMINCOR (based in Córdoba) and Cámara de la Piedra (based in Olavarría, Buenos Aires) and the national association, Federación Argentina de al Piedra, are stepping up their lobbying activities. Each of the regional associations represents some 75%-80% of each region's production, and the two regions together represent some 75% of national production.

These associations are focused on predicting the future demand for aggregates despite a lack of national planning, seeking better access to resources near urban areas and promoting better transport logistics to markets. The associations are also actively promoting best practices across the sector, encouraging more interaction with society as part of the "licence to operate", as well as seeking to rationalise environmental legislation between the various provinces. The November 2017 3rd Aggregates Conference highlighted all those activities.







Argentina is now preparing plans to host the GAIN 2020 Meeting

The associations are also now planning to host the next GAIN meeting in 2020 as part of their 4th National Aggregates Conference, to be held in Córdoba in November 2020. More details will be advised soon. Córdoba has an impressive conference facility, and is easily accessible by air. Despite the current difficult economic conditions, there will be a

very special and warm Argentine welcome for all GAIN attendees. Indeed, GAIN will have a record number of members attending as it continues to add new members. No efforts will be spared in making the best GAIN meeting ever, a considerable challenge after Barcelona!

News from Brazil

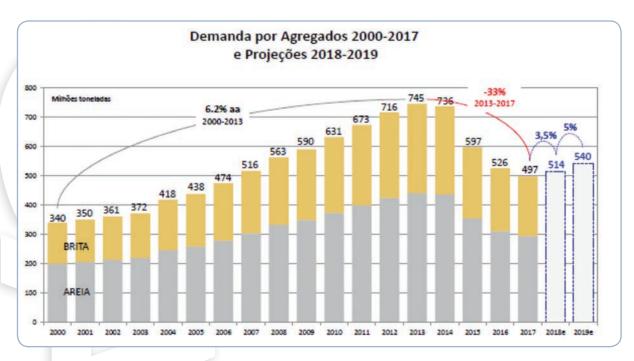
Brazilian Market shows signs of Economic Recovery

Brazil had shown steady economic growth at 6.2% a year from 2000 up to 2013, but then the economic crisis caused a 33% collapse up to 2017. The good news is that the election of the new Government has helped restore confidence, and growth is aggregates demand is now being recorded in 2018 and 2019. Current demand equates to just over 2.5 tons/capita; this has significant growth potential in the light of infrastructure and housing demands.





FERNANDO VALVERDE CEO, ANEPAC, Brazil



ANEPAC Lobbying Priorities

Investment in the aggregates industry in Brazil is being impacted negatively by a number of factors. These include legal uncertainty under the new Mining Act, high tax burden on the industry (encouraging informal activity), poor logistics due to underdeveloped infrastructure, increasing difficulties in obtaining permits, and a lack of national planning.



Urban encroachment on quarries is an increasing challenge, as are land-use conflicts, often resulting in sterilization of deposits. These land-use conflicts and absence of land-use policies are pushing aggregates producers to even greater distances from the major urban areas. This means increasing transport costs, and leads unnecessary social costs due to clogged highways. ANEPAC aspires to drawing up a national aggregates plan

On the positive side, ANEPAC is well-represented in the regional and state associations in both the sand & gravel and crushed stone sectors. It represents over 80% of the Brazilian aggregates production, and so has a strong voice with state authorities and at in congress at the federal level on all the key issues for the industry. Therefore ANEPAC is very positive about the future of the aggregates industry in Brazil.

News from Chile



ARENEX

CLAUDIO HURTADOManager of Aggregates,
Cementos Bio Bio/ARENEX, Santiago, Chile

The aggregates industry is in steady development in Chile, however no aggregates association yet exists. ARENEX is the main producer, with strategically-located quarries in all parts of the country, which is situated between the Andes and the Pacific, stretching 4,300km from north to south but only 350km at it widest point. ARENEX was acquired by Cementos Bio Bio near Santiago in 1989, and it has subsequently grown throughout Chile.



National production of aggregates is estimated at about 45 million tons, almost 3 tons per capita. Besides ARENEX, there are about 10 significant players, but otherwise the market is still quite fragmented. It is estimated that 74% of aggregates go into concrete products, both as readymix and precast. Of the remainder 17% goes into road bases, while 9% is used in asphalt paving. Some key ARENEX projects are shown below.



The Perez-Zojovic Roundabout, Santiago



Motorway from Concepción to Cabrero

The main industry challenges are a low demand for aggregates, competition from the informal sector exacerbated by high taxes on the responsible players and excessive bureaucracy surrounding permitting of new reserves around the capital region of Santiago.

The formation of an aggregates association is seen as a strategic goal in campaigning on these industry issues. Meantime ARENEX operates to the highest standards of sustainability and is pleased to represent Chile in GAIN.

News from Costa Rica





Introduction to Quarrying in Costa Rica

Costa Rica is a small picturesque country in Central America, situated between Nicaragua and Panama, with a population of just 5 million and the highest life expectancy in Latin America. It is noted for its high biodiversity and strongly protected ecological parks.

This dedication to biodiversity conservation has virtually prohibited surface extraction of metallic minerals, particularly of gold. Though the extraction of aggregates for construction is tolerated, there is unfortunately a low public perception of extraction due to poor experiences of the metallic mining industry in the past.

Development of the Aggregates Sector

The aggregates sector in Costa Rica has hitherto been rather fragmented and weak, with generally poor permitting procedures and controls by the state, which unfortunately has resulted in some poor practices up to now in aggregates extraction.

The national market is estimated at 15mt, with 44% as crushed stone from quarries and 56% as sand & gravel extracted from rivers. Some 60% of the aggregates market is located in what is known as GAM (the Grand Metropolitan Area) around the capital city, San José. The average consumption is about 3 tons/capita, which is growing steadily, though more precise market data is not currently available.



Facing the Industry Challenges

Costa Rica does not yet have an aggregates association, but such an association, possibly working in parallel with the cement association, could act as a powerful united voice in dialogue with the authorities and the public. Its priorities would be:

- Communication and education of the public about the importance of the aggregates sector, how extraction is achieved responsibly and the real product benefits to society in building houses and infrastructure.
- Impressing on the state authorities the need for proper enforcement of controls on extraction that will lead to more responsible and sustainable extraction which also takes great care of the environment, its people and communities.

It is hoped that the membership of FIPA and GAIN might stimulate the formation of an aggregates association in Costa Rica in the near future

FIPA – Linking Iberia and Latin America





An update on FIPA (Federación Iberoamericana de Productores de Aridos)



FIPA is an aggregates Federation that links Iberia (Spain and Portugal) with all the countries of Latin America, It is effectively a sub-set of GAIN focused on exchanging industry experience and best practice between the Spanish and Portuguese-speaking countries of Europe and Latin America.

FIPA usually meets annually, in conjunction with the major conferences, the most recent meeting being at FdA Conference in Santiago de Compostela in Spain.

FIPA plans to be more active in the years ahead in acquiring new FIPA/ GAIN members in other countries of Latin America, and thereby help in promoting industry performance and sustainability in tandem with its fast-growing regional demand for aggregates.

AFRICA

News from South Africa





NICO PIENAAR

Director, Aggregate and Sand Producers Association of South Africa (ASPASA)

2018 – A Strange Year for South Africa

All seems fine in South Africa, but we have had the strangest of weather over the last few months. Drought was followed by heavy rains, then snow. There is a change in weather patterns, and climate change is a discussion point in daily conversations.

The economy also has had a substantial dip with poor trading conditions. The national road body, SANRAL, has put out little to no work this year, and road building companies have experienced some major challenges.



ASPASA is continuing with its series ASPASA@Work circulars, with a range of subjects, including General, Health & Safety, Environmental, Skills Development, Legal and Transport. Members appreciate these as easy to use and quick to read.

Strategy for the next Five Years

In November, ASPASA held a strategic meeting with a focus on the next 5 years. Associations are important for GAIN members, just as for ASPASA. There must be value in an association; it must provide support and have a clear direction so as to ensure that ethics, values and standards help move the association and its members forward. There must be thinking on how changes can be made to ensure a positive outlook, not only for members, but also for all stakeholders and the wider public.

Some of the key thoughts emerging from the strategic review were:

- We need new ways of communication with members, students and the general public; the new generation sees things differently and are on different platforms.
- Technical and Quality issues are increasing in importance, and contact with academic institutions must be increased as demands on industry products increase.
- Skills development is crucial in an industry that is seen as dirty and boring.
- Safety and Environmental performance are becoming ever more important.
- More liaison is needed between the association, its members and the Regulator.

Therefore in 2019 there will be a huge amount of work to be done by ASPASA.

the recent Mine Occupational Health & Safety Summit, hosted by the Minister of Mineral Resources, the Honourable Gwede Mantashe, ASPASA Director Nico Pienaar was presented with a Mine Health & Safety Council (MHSC) Certificate of Recognition. The citation read "In appreciation of exceptional commitment and contribution to the MHSC journey to zero harm



in the South African mining industry". The Minister added that "mining is not only about the minerals being mined, it is about human beings".

Nico also recently received recognition by the CEO Global body, under the heading of Agencies and Regulatory Authorities; Nico was winner of the South Africa section. Nico, well done on receiving both awards!

On people development, Gert Coffee recently retired from his company, AFRIMAT, but will continue in its Human Development and Mentoring role. Of great importance to both ASPASA and GAIN, Gert will continue as Chairperson of ASPASA and will assist in providing strategic advice to it in the years ahead. Gert played a key role in organising the GAIN meeting in Cape Town in 2016.

OCEANIA

News from Australia





KEN SLATTERYCEO, Cement, Concrete, Aggregates Australia (CCAA)

CCAA and IQA host Biennial Construction Materials Industry Conference (CMIC18)

In the context of the biggest infrastructure boom in Australia's history, the Construction Materials Industry Conference 2018 (CMIC18) was held for the 7th time in September 2018 at the International Convention Centre, Sydney. The three day Conference which was attended by over 620 delegates provided an opportunity to look towards the future, with industry leaders and key experts encouraging participants to think about the opportunities and challenges in innovation, technology, economics, politics, energy and workplace diversity.

In addition to the plenary sessions, an Industry Innovation Day provided the opportunity to hear over 24 "TED style talks" from industry representative on new ways of working, across health, safety, environment, operations and community engagement. The Industry Exhibition, which had over 47 exhibitors, connected industry with equipment suppliers to help meet the growing demand for construction materials. Find out more at www.ccaa.com.au

Innovation on Show – National Innovation Awards

Quarry explosives that use rubber from recycled tyres and an innovative handrail system that makes working at heights on ISO tank containers much safer were among the winners of this year's National CCAA Innovation Awards.

The 2018 award winners were announced at a gala dinner and networking event held as part of the biennial Construction Materials Industry Conference (CMIC18), held in Sydney. In addition to the traditional awards for *Environmental Innovation* and *Health and Safety Innovation*, this year saw a new category - *Community Leadership*, with the inaugural National Award going to Boral's Tevan Quarry, on the far north coast of NSW. Full details on winners, highly commended recipients, videos of nominations and more are available at *www.ccaa.com.au*













WH&S Guideline - Management of Respirable Crystalline Silica in Quarries

In September, CCAA released a guideline regarding the appropriate assessment and control of respirable crystalline silica (RCS) in Australian quarries.

The guideline is set to become a valuable tool for our members' and is directed towards occupational exposures to RCS. The document reinforces that community members can be reassured that if the risk to workers is controlled effectively, then the likelihood of community exposure will also be managed.

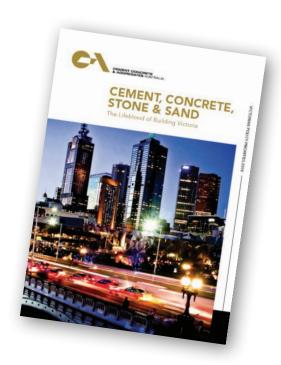
In addition to the Guideline, CCAA has produced a one-page summary and a toolbox talk sheet to engage staff. The Guideline is available at www.ccaa.com.au



CCAA urges Governments to act on Extractive Strategies

Each year over 200 million tonnes of extractive materials are used to build homes, workplaces, public buildings and roads in Australia. With the biggest infrastructure boom in Australia's history happening right now, it is paramount that strategies are in place and Australia's State and Federal Governments are working with industry to provide safer, faster and more efficient streamlined activities and supply chains. Working together to ensure resources are delivered on time and to budget, whilst keeping Australia moving.

In the lead up to State elections CCAA has been engaging with Governments by promoting and encouraging more work to be done around Extractive Strategies. This includes CCAA's Victorian Policy Statement and CCAA's recent NSW Media Release which will be followed with a NSW Policy Statement, which was released in December 2018.



News from New Zealand



aqa

WAYNE SCOTTChief Executive of the Aggregates and
Quarry Association (AQA) of New Zealand

AQA NZ - a Year of Change

It's been a year of change within the New Zealand quarrying sector and its industry organisation, Aggregate and Quarry Association AQA. At the annual QuarryNZ conference in July, 31-year-young Jared Johnston took over as AQA chair from Brian Roche, who remains on the AQA Board.

Johnston is from a quarrying family since leaving university with law and commerce degrees has rapidly progressed with major industry player, Fulton Hogan. He is supported by the appointment of Mike Higgins as deputy chair. Higgins has a 30+year history within the quarrying sector and currently is Quarry Development manager for major central North Island company J Swap Contractors

In September, long-serving AQA CEO Roger Parton (rear centre in photo) retired and Wayne Scott (front centre), current Chief Executive of the Mining/Extractives Health and Safety Council, MinEX, was appointed of joint CE of both MinEx and AOA.



Scott is a New Zealander who'd worked for many years in Australia, most recently as an inspector of mines for the Queensland Department of Natural Resources and Mines. He was also a past president of Institute of Quarrying Australia. He returned to take up the MinEx role in July 2017.

Scott has hit the ground running for AQA with a briefing document prepared for the Jacinda Ardern-led Government, and engagement commenced with Cabinet Ministers to seek adoption of long-term planning and security for the industry.

Welcome Growth in Aggregates Demand in 2018

The briefing paper notes that the price of aggregate rose 15% in 2017 and ambitious Government housing and road-building projects would see ongoing price rises without moves to secure proximate supplies of resources.

All New Zealand regions are reporting rising demand for aggregate and other product, as can be seen in the graph.

Total quarried tonnage was also well up at 41m tons but the biggest surprise was the value of quarried products in NZ in 2017, at a highest ever NZ\$670 million. This is a national average selling price of \$16.23, well up 2016's \$14.70 per ton and continues a strong upward trend.

Industry Training Programs Continue



Wayne Scott has also been at the forefront of driving the establishment of a new apprenticeship scheme for the quarrying sector with 35 trainees due to start their apprenticeships next year.

This partly reflects the fact that the average age of a New Zealand quarry worker is 55 years.

As joint MinEx CE, he will also lead most of 20 regional workshops in 2019, focusing on the needs of smaller quarries to meet a range of health and safety requirements.

EUROPE

News from Europe





DIRK FINCKESecretary-General, European Aggregates Association (UEPG)

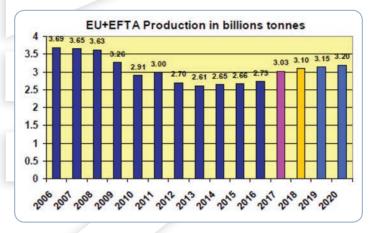
Election of new UEPG President, 2018-2021



Every three years, a new UEPG President is elected. In May 2018, Thilo Juchem took over as President from Jesús Ortiz. Thilo is a German national, and is manager of the Juchem Group, a 75-year old medium-sized family aggregates and asphalt paving business. He brings with him a wealth of experience in the German Aggregates Federation (MIRO). He has set an ambitious strategy for consolidation and growth of UEPG membership

and industry sustainable performance. His background is particularly relevant as UEPG membership is predominantly small and medium-sized enterprises.

European Economic Recovery Continues



Analysis of the 2017 aggregates production data for Europe (as 28 EU members + the 4 main EFTA countries) has demonstrated a very welcome 11% increase over 2016. For the first time since 2011, the total exceeded 3 bnt, still well below the pre-crisis levels of a decade ago. There is optimism that growth will continue to 2020.

UEPG Lobbies for an ambitious European Industrial Strategy

Just as a reminder, the European Union (EU) still comprises 28 member countries, but that will reduce to 27 countries when the UK "Brexit" (presumably) takes place in March 2019. Incidentally, the good news is that the UK Mineral Products Association (MPA) has pledged to continue its UEPG membership thereafter, and will host the 2019 UEPG Delegates Assembly in London in May 2019.

Every five years there are elections to the European Parliament, next due in May 2019. This election is highly important to the future direction of Europe and to the policies of its civil service, the European Commission, and also shapes the key leadership positions in the European Council. Therefore UEPG sees it as a particularly important opportunity to have its voice heard, as an important European industry, and has therefore joined in the Industry4Europe Coalition with more than 130 other industry associations.

The Industry4Europe Coalition in its Joint Reaction Paper advocates thriving industry as the pre-condition for a wealthy society and that industry needs good access to resources. UEPG, as Co-Rapporteur of the first section, emphasised "re-establishing the positive link between industry and society" and the demand for a "coherent medium to long-term industrial strategy" which is "vital for ensuring policies on sustainable access to resources and energy at a competitive price".



As an active member of the coalition, UEPG attended numerous high-level meetings to hand over the position papers to EU decision-makers such as the Industry Commissioner, Elżbieta Bieńkowska (as in the photo below) and the European Parliament President, Antonio Tajani.



UEPG and GAIN are stakeholders in the UNEP Study on Global Sand "Scarcity"

The media have recently featured misinformed reports on global sand "scarcity", also implying severe ecological damage. The United Nations Environment Programme (UNEP) is now drafting a report on the issue; unfortunately it was also misinformed about the real-world aggregates industry. UEPG and GAIN are now engaging with the UN as key responsible industry stakeholders.

Rumours: Scarcity of sand



- ARTE (France) documentary of 2013: "Sand
- SRF (Switzerland) documentary of 2014: Sand: Drama und Ökozeitbombe - Einstein
- Facebook film 2018: "World Sand Crisis"
- ARTE (France) documentary of 2018: "Sable, en voie de disparition Le Dessous des cartes"
- Radio WDR 5 (Germany) podcast of 2018:









FEDERACIÓN ARGENTINA DE LA PIEDRA























NATIONAL STONE, SAND & GRAVEL ASSOCIATION

















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