

The Trend and Development of Quarry Industry in Malaysia , Opportunities & Challenges

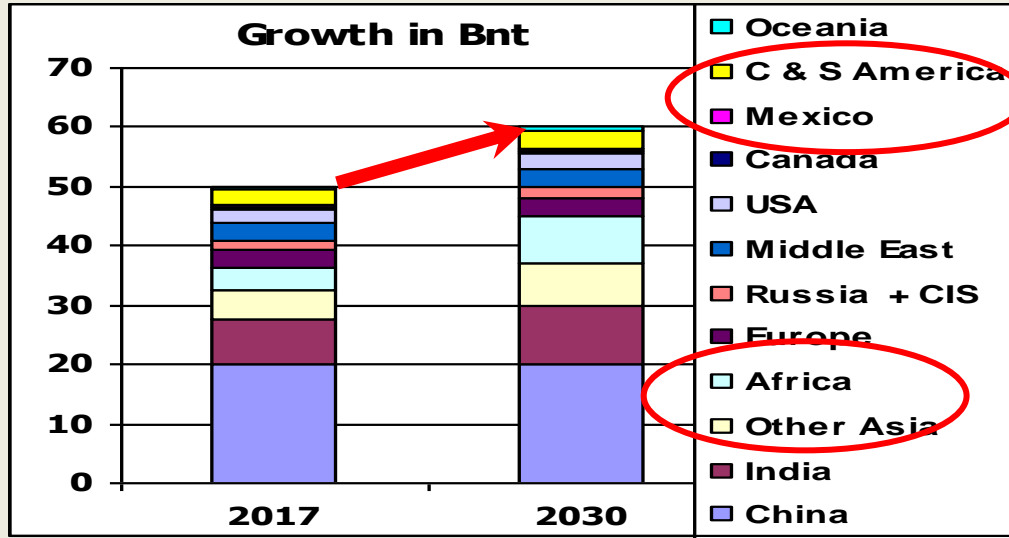
马来西亚砂石行业发展趋势， 机遇与挑战！

GAIN Conference 2-5 July 2023 - Queenstown, New Zealand



Delivering Community Needs and Dreams !!

Globally, Aggregates have a Great Future!



World needs Infrastructure

■ Roads, Highways, Rural

■ Railways, Metros

■ Ports, Airports

■ Water, Wastewater

■ Hospitals, Schools

■ Public & Social Buildings

■ Electricity, Communications

■ Climate Change Adaptation?

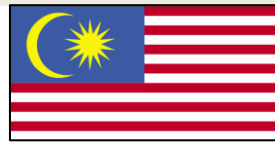
Global Outlook to 2030:

■ Global aggregates demand will likely rise to 60bnt by 2030

■ Driven by increasing population, urbanisation and economic growth

■ Big challenges and opportunities ahead = improving the quality of life!

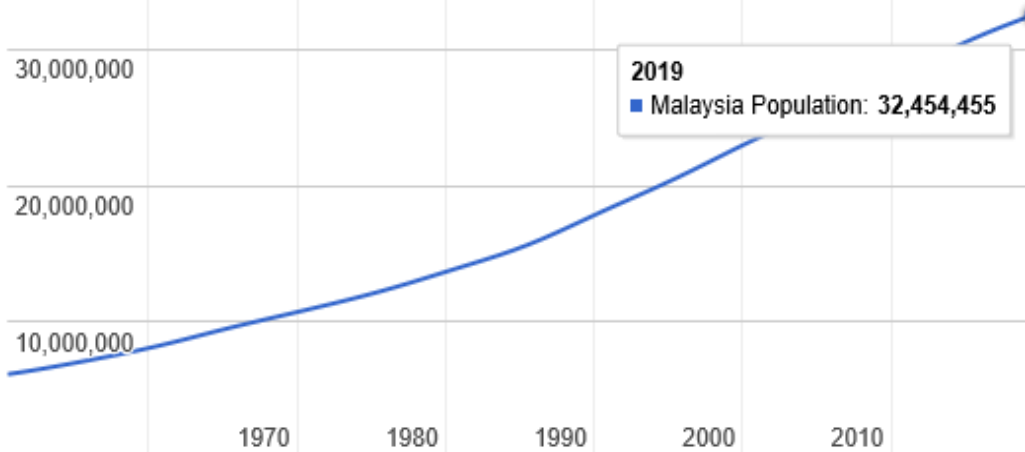
Malaysia Population



32,465,017

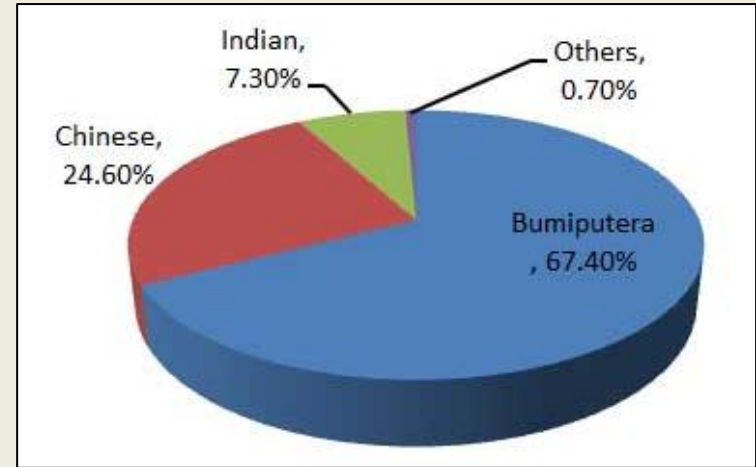
Malaysia Population (1950 - 2019)

— Malaysia Population



Yearly Population Growth Rate (%)

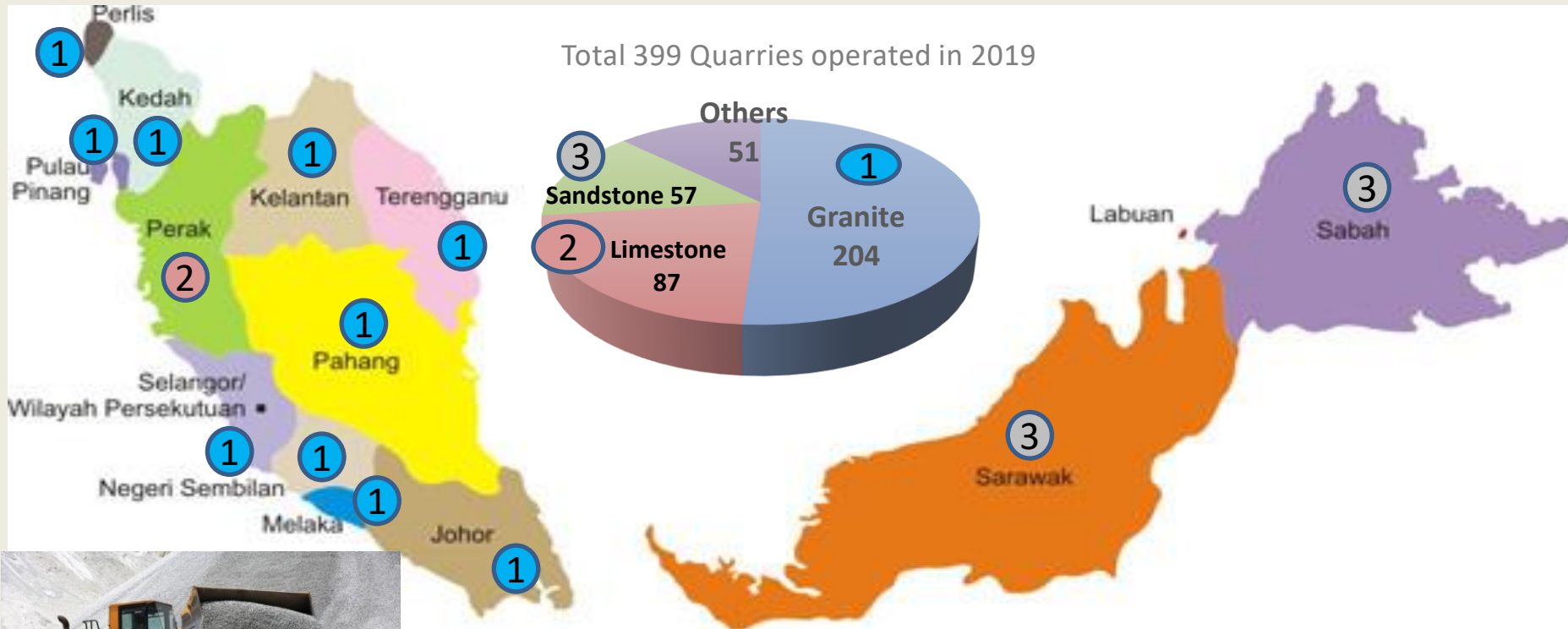
Major Racial Composition 种族结构



Contribution of Rock Quarrying for the Country

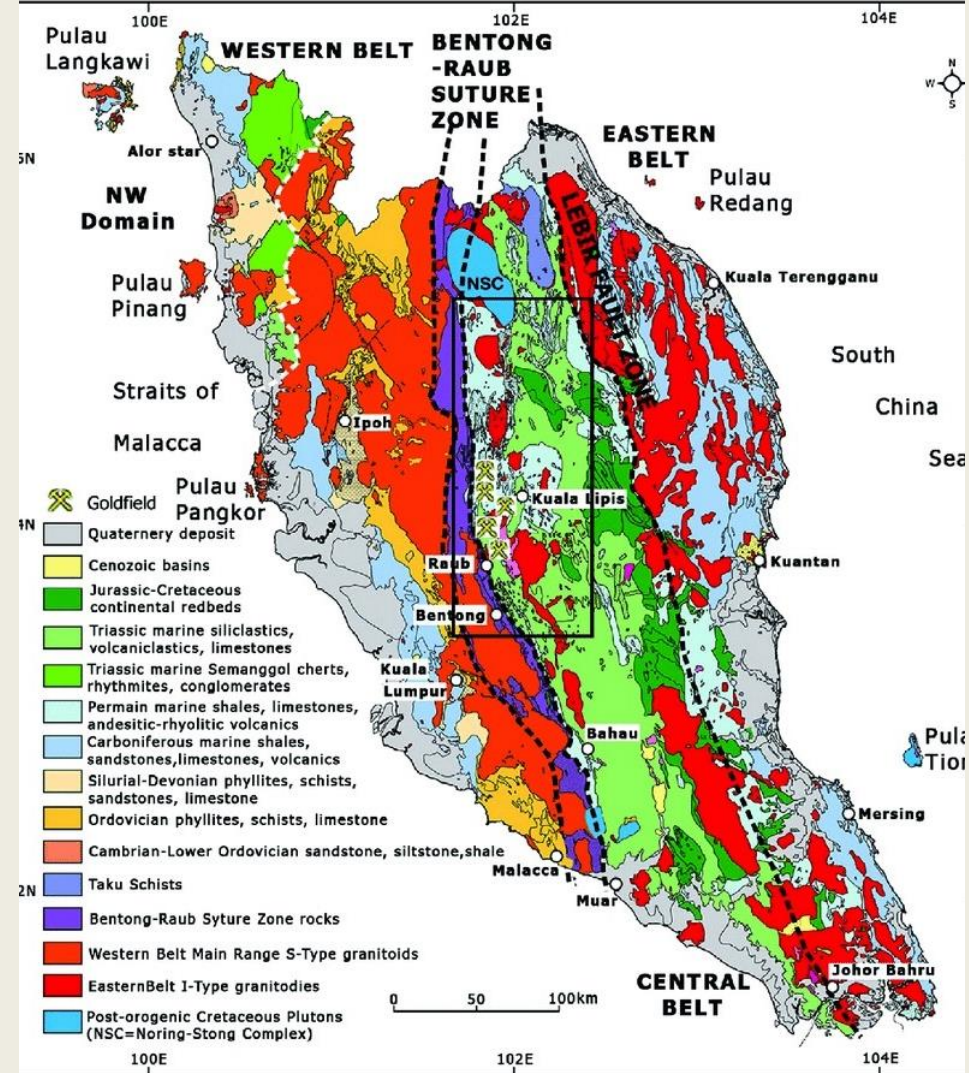
- A strong national economy and excellent quality of life are built on a foundation of aggregates products.
- Aggregates touch our everyday lives, from driveway to workplace
- We drive, sit, stand and walk on aggregates related products
- Without sound infrastructure, such as highways, bridges, mass transit, airports, water system and rail, the planned economy could not flourish.

Quarrying in Malaysia



- Rock quarrying in Malaysia is a very fragmented industry.
- In 2019 was 128.5 Million Tonnes.
- Most of the production are for domestic consumption and only 5.3% for export market mainly to Singapore & Brunei.

Geographical Location of
Granite Rock Reserve
 The zone indicated in Red
 are granite rock reserve
 mostly located along the
 Titikwangsa range



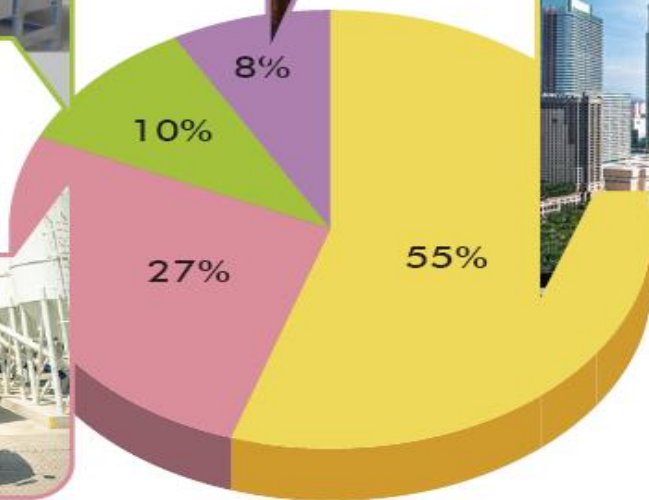
Location of Prevailing Quarries

- Quarries are normally located near to market, not more than 50km in the local context,
- Delivery is by road, cost would be prohibitive beyond this range
Aggregates are low price high bulky material.
- Quarries located to serve major towns have relatively bigger crushing capacity. *(Local Derived Demand)*
- Over supply due to Capacity Build Up as a result of peaks in the cyclical demand of aggregates becomes a norm.
- Most quarries at the fringe of major townships are now generally encroached over the years with sprouting housing and commercial development.

Quarrying Industry in Peninsular M'sia in Brief

- The rock extracted are processed into aggregates for building material
- More than 90% of the output are consumed domestically
- In P. M'sia, the rocks are predominately from good quality granite (75%) and limestone (20%)
- Per Capita of stone consumption is around 3 to 3.25 tons.

USES OF CRUSHED STONES (Aggregates)



- Infrastructural Development and Commercial Buildings
- Ready Mixed Concrete
- Asphalt/Road Maintenance
- Others: Concrete Products, Brick factories etc

Land Status of Malaysia's Quarries

Alienated Land :

I. Freehold

ii. Leasehold

**iii. State land specifically
alienated for quarrying**

Ownership of Quarries in Malaysia

- Quarries in Malaysia are made up of Private Individuals, Pte Ltd Companies, Public listed Companies
- There are some quarries owned by Foreign Investment

Government Agencies and Bodies Governing Quarries 监管单位

- JMG (Jabatan Mineral & Geosains)–The department of Mineral and Geosciences of Malaysia is the main government agencies empowered to overseeing the operation of Quarries
- However Malaysia Land Rules stipulates that quarrying land are under the jurisdiction of respective States Land Rules who has absolute right over the fate of individual quarry.

Quarry are Builders of community needs and dreams, not the creator of community nightmares

ECRL 东海岸铁路



BRT



In a modern world, there **will be no nation building** if there are no **rocks or aggregates** products.

Affordable Homes

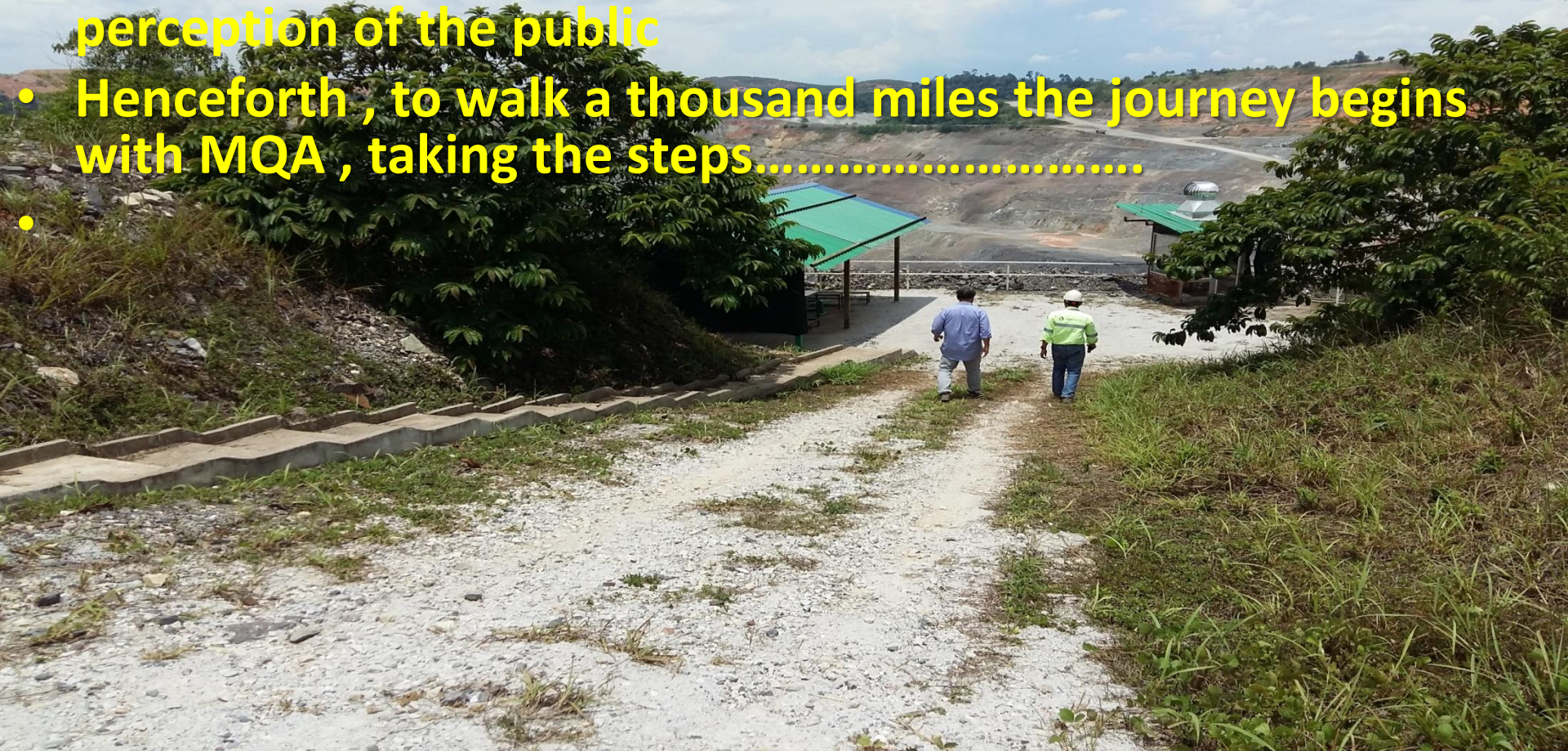


Quarry produce are one of the major and most important sources of cheap bulk raw materials, It is a vital industry but majority hold the “NIMBY” (Not In My Back Yard) stand



MQA undertakes this major role in addressing the negative perception of the public

- Henceforth , to walk a thousand miles the journey begins with MQA , taking the steps.....





MQA (Malaysia Quarries Association) 马来西亚采石协会

MQA membership Represent 80% of quarry operations in Malaysia. Membership are by corporate these Includes global players and numerous SME's



SUNWAY®



 **Hanson**


Hap Seng



 **Spring Energy**

Positive Industry Trend evolving over the last decade

- ✓ Adoption of good practices and benchmarking with MNC
- ✓ Emerging of effective quarries associations to coordinate with players to promote collaboration/dialogue with government agencies for betterment
- ✓ Adopting load /fuel efficient trucks to increase productivity and to circumvent manpower shortages.
- ✓ Emphasis on initiatives on HSE to revert the negative public perception.
- ✓ Gain traction/recognition with HRDF, Human Resource Ministry, to introduce industry specific training to workers to upgrade the skill within the industry.

Modern sophisticated mobile machineries at work ensure Safety & increases in Productivity



Replacing “Lori Hantu” with Heavy-duty trucks for greater Productivity and Safety



3 : 1



Adoption of good practices benchmarking MNC
Covered Crusher Operations: Mandatory requirement – one
of the quarry in Sg Buloh Selangor States



Environmental friendly measures – dust suppression with sprinkle and covered crushing plants

Conventional Approach with water sprinkle



Adoption of the latest best practices in dust suppression with covered conveyor and crusher



**Adoption of Environmental friendly practices
Dust Prevention “Water Sprinkle system in washing bay cleans tyres to
remove dust before tipper lorries leave quarry site”**



Stringent Environment Compliance Standard –Malaysia observing one of the highest standard in the world

Element	Parameter	Limit	Regulating Body
Ambient Air Quality	PM 10 (24 hrs)	100 µg/m ³	Malaysian Ambient Air Quality Standard (MAAQS 2014)
	PM 2.5 (24 hrs)	35 µg/m ³	
	Total Suspended Particle (TSP)	260 µg/m ³	Malaysia Ambient Air Quality Guideline 1989 (Old guideline set by DOE)
Noise	Leq (day-time)	70dBA	Industrial zone, condition set by DOE (Dept of Environment)
	Leq (night-time)	60dBA	
Silt trap discharge water	Total suspended solid (TSS)	50mg/L or 100mg/L	condition set by DOE
	Turbidity	250 NTU	
Vibration	V _{max}	5 mm/s	Standard set by JMG



Role of MQA in promoting and elevate image Malaysia Quarry industry

- I. **Engagement and Cooperation with Government Agencies** 搭建业者与政府沟通的桥樑
- II. **Training and Development** 人才培养开发
- III. **Corporate Social Responsibility** 履行社会企业责任
- IV. **Net working and Publicity** 行业联谊，国际交流学习，
公关与宣扬

1. Engagement & Cooperation with Government Agencies

搭建与政府沟通的桥梁

- Government and regulators are second only to customers in their ability to affect companies' economic value.
- One of **MQA** key goals is to facilitate regular, open and honest dialogue with regulatory authorities and government departments

Merger of Shot firer License into one jointly recognised License by PDRM and JMG



MQA invited by KATs for discussion and involvement in Asian Mineral Award 参与亚细安矿业奖



Engagement & Cooperation with Government



Competition Law Seminar : Healthy Competition Breeds Success in Collaboration with Malaysia Competition Commission 与马来西亚反垄断委员会联办-良性竞争成功之道!



GST Seminar - Participants actively participates in Discussion 落实消费税讲座-会员积极参与讨论

**Courtesy Visit to New Director General
of JMG 貌拜会新任矿物局局长**



**Regular Dialogue with
Government Agencies to
promote greater
understanding**

**Annual dialogue with JMG
定期与矿物局举行对话， 交换意见**



2.Training and Development

Human Capital 人才倍训开发

To achieve the primary goal of fostering a more professional and sustainable industry, we need to develop and invest in the people within our industry.

Shot firer Certification Program in collaboration with Royal Malaysia Police & Dept of Mineral & Geosciences
警察总部官员分享爆破的规范和管制



4 Days shot firer course in Collaboration with Spring Energy Sdn Bhd 与会员联办矿山扎炸石实习



Provision of Industry Specific Training Program



Exclusive Shot firer familiarization In house Program with heads of PDRM officers 提供马来西亚皇家警察内部培训

“Crushing & Screening” Course in collaboration with industry expert Yoonsteel Foundry



Crushing and Maintenance Workshop in collaboration with Trimax -Johor Bahru



Training in collaboration with Industry Experts



Operating Quarry Equipment for High Productivity in Collaboration with Sime Industrial and Tractors Academy



MQA /Volvo Safety Seminar “Safety-license to operate, moving forward” 生命的安全是不可用钱衡量的



Learning Beyond Classroom 课室以外的教育

Seeing is Believing ! 百闻不如一见

Overseas Technical Study, Visits, Workshops and Seminars



Advanced Quarrying in Automation, Human Capital development, Haulage Logistic and HSE Control - the Australian Experience



MQA Technical Training Gold Coast / Brisbane in Collaboration with Hanson Australia 07 ~ 12 Oct 2013



3. Corporate Social Responsibility

履行社会企业责任- 取之社会用之社会

- Community expectations and awareness on the environment are on the rise, MQA recognises being part of the community and a good corporate citizens must give back to community with our value neighbour and community in general.
- MQA's core strategy is aligned and aimed at benefitting the community itself and improving the environment we live in.
- E.g. of CSR activities carried out by MQA are tree planting, raise fund for needy school, Blood Donation ,Safety in the work place and community around.

Plant a tree, save planet Earth!

植树救地球

Tree planting in cooperation with town council

600 members of the quarry and community resident planted 600 trees



Plant a tree, save planet Earth!

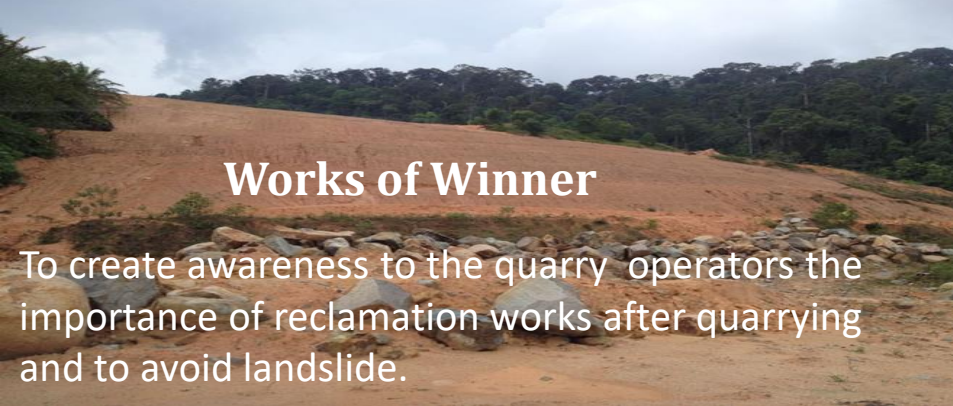
植树救地球



Safety Award –walking the talk of safety

颁发企业安全奖给予在职杰出贡献的会员

YB. Dato' Sri Dr. James Dawos Mamit Deputy Minister of Natural Resources and Environment presented the award to winner

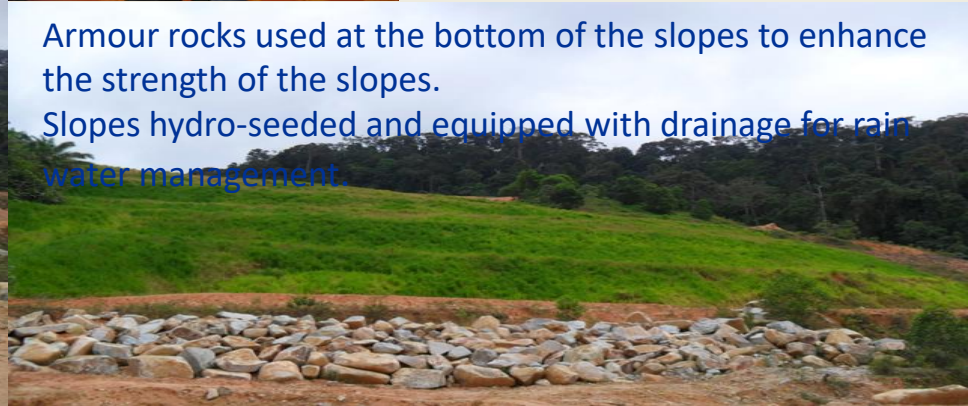


Works of Winner

To create awareness to the quarry operators the importance of reclamation works after quarrying and to avoid landslide.

Armour rocks used at the bottom of the slopes to enhance the strength of the slopes.

Slopes hydro-seeded and equipped with drainage for rain water management.





Annual Blood Donation Campaign 捐血救人!



Sports facilities for the community

社区运动康乐设施



4. Networking
International Cooperation,
Publicity

国际交流，分享，合作

Networking , International Cooperation Publicity

- Hold Press Conference to inform the public on issues, policies affecting the quarry industries and to state MQA's position
- Networking and engagement with oversea organisation such as working with China Aggregate Association, GAIN, equipment manufacturer for technical visit and study
- Get –together session among members of the quarry fraternity to promote greater understanding and share issues

International Exchange & Cooperation –Gain Courtesy visit

国际交流，学习合作



Austmine
Conference 2017 Perth
澳大利亚矿业会议



President Hu presented memento to MQA@ the CAA MQA dialogue Huzhou 2016



Courtesy Visit- Hunan Aggregate Association 湖南砂石协会莅临马来西亚采石协会MQA 拜访指导交流



MQA Selangor / Kuala Lumpur branch Golf Tournament & Charity Dinner 分会高尔夫球慈善募款活动



Launch of MQA Yearbook & Member Directory - An official publication of the voices of quarrymen & quarry fraternity

Together We Strive Towards A Caring Community

Titanium Sponsor



Publicity in Media to educate the Community –coverage in one of the widest readership newspaper



星洲日報 21 · 9 · 2017 | 星期四 |



副環境部長：或土沉劣等建材造成 “炸石不會震裂屋”

(吉隆坡20日讯)天然资源及环境部副部长拿督哈敏沙木里指

(MCOM)的执照持有人颁发火药爆破作业人员执照。

一众执照持有人接到火药爆破作业人员执照后，与哈敏沙木里（前排左二）及沙哈阿基沙希耶曼（前排右二）

Opportunity and Challenges to Quarry Industry

Approval of Quarry is subject to Final Land Use Plan

- **For Commercial Mixed Development ?**
- **Residential Housing Development ?**
- **Resort –e.g. Sunway Lagoon , Mangga Resort ?**
- **Eco Tourism?**
- **Agriculture?**
- **Re-vegetation – plant more trees in remote areas?**
- **Land fill ?**

Waste land to Wonderland –successful transformation of abandon quarry land to Resort and mixed commercial development – Sunway Resort City



Develop Manufactured Sands 开拓机制砂



- Manufactured sand is the ideal solution where natural sand is no longer available
- Also makes great economic sense in using by-product process fines
- Production can be via a small vertical cone crusher with air or centrifugal classification
- May need to alter concrete mixes with clever use of admixtures
- High-quality manufactured sands can allow some reduction of cement content in concrete
- *Will be driven by UNEP Report!*

Future Technology in Quarrying – people shun *3 D jobs

- With the onset of artificial intelligence (AI) quarrying practices are set to change. How fast the change will be adopted will largely depend on affordability and availability of new technology that equipments fixed with AI are utilized.
- With its tremendous consumption of quarry product per capita and rising labour cost will more process of quarrying will be soon replaced with AI technology.

- *3 D – *Dangerous, Dirty and Difficult*

Digital Edge & Artificial intelligence (AI) Remote Excavating with the use of 5 G



Digitisation to industrial Revolution 4.0+!



Remote Excavation 5G 远程操作挖掘机

- Increasingly sophisticated aggregates quality demands for concrete and asphalt mixes
- Optimisation of every stage of the process increases profits 30-40%!
- Profitability also depends on optimising products to market needs!



Health & Safety Imperative

安全, 环境卫生第一



- Fatality prevention needs focus on Driver and Contractor Management
- Best companies have reduced Accidents by 90% over the last 10 years
- Illness focus now requires reduction in RCS exposure
- Triple Zero is the Target!

Recommended Good Practice for



Recommended Good Practice for



Biodiversity & Restoration –Responsible & Sustainable quarrying



- Quarries and Pits are biodiversity havens!
- Biodiversity is a real strength of the Aggregates Industry!
- Many quarries host Red-List and protected species
- Restoration is key to the continued licence to operate from society



Thank you 谢谢

