



United we create the future

Two years of the Government
to Government partnership
between the United Kingdom
and the Republic of Peru

The Authority for Reconstruction with Changes (ARCC) and the United Kingdom Delivery Team (UKDT)

In 2017 Peru suffered devastating flooding from the El Nino weather phenomenon which brought torrential rains to coastal regions of the country.

The flood waters destroyed homes, roads, schools, hospitals and many lives and livelihoods were lost in the tragedy.

In 2020, the Republic of Peru signed a Government-to-Government agreement with the United Kingdom to provide advice and support to the Authority for Reconstruction with Changes (ARCC), the Peruvian Government entity created to rebuild the destroyed infrastructure.

Since then, the United Kingdom Delivery Team (UKDT) have mobilised a team to Peru, supported by subject matter experts from around the world, to work closely with the ARCC to rebuild 74 schools, 18 healthcare facilities and to provide comprehensive flood defences for 17 river basins and 7 cities along the coastal regions of Peru, protected by a new integrated early warning system.

The UKDT's contract has been extended to the end of 2023 so that the team can continue to support the ARCC with the completion and handover of these crucial projects. The UKDT is made up of experts from UK consultancies Mace, Arup and Gleeds.

Supporting the delivery of *high quality public services*

In our first year we brought our team to Peru, set up systems, processes, protocols, appointed contractors, developed design standards, guides and mobilised construction on sites across the country.

If the first year of the Government to Government partnership was primarily about acceleration, our second year has been about sustaining the pace of progress. Together, the ARCC and UKDT have made substantial progress,

with schools and health centres opening to local communities from Tumbes in the north of the country to Chimbote, 650 kilometres to the south.

We are extremely pleased with the quality of schools and health centres that have been built and from the feedback that we're getting from the local communities using the facilities. It is immensely rewarding to assist the ARCC to complete and handover these projects to the

pupils, parents, patients, nurses and doctors that will use them.

The facilities are designed to be resilient and sustainable and this approach has been built into guides and standards now being used across Peru. So it's not just benefitting people today but for generations to come.

Kate Flint, Programme Director – UKDT



"The UKDT's continued support strengthens us as an institution, as it includes a permanent transfer of knowledge and skills for professionals and technicians involved in public management in the country. As projects are completed, the change in quality standards is more than significant and of benefit to all. The ARCC, with the UKDT, is setting benchmarks for what should be the future of public services in Peru".

Rosmery Marcela Cornejo Valdivia
Executive Director – Authority for Reconstruction with Changes

Two years of *progress*



+\$4bn

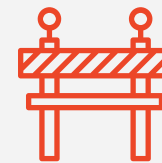
Value of signed contracts

10 Projects nearing completion



>425

Site visits



99

Number of projects on site



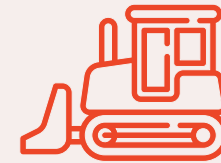
24

Completed projects



137

Total number of projects



Major international industry awards

**3 wins and
2 highly commended**



**36
million**

Hours worked



Formal course attendance:

11,765



Informal course attendance:

13,883



...with changes

The 'with changes' part of the Peru Reconstruction programme officially refers to the comprehensive flood defence works that we are helping to implement, what we call 'integrated solutions'. These works will ensure the effects of future El Nino flooding events are minimised and do not cause the same level of destruction to local communities as they did it 2017.

We have been working closely with the ARCC to bring other elements of change to the programme and invest in a powerful and lasting legacy.

Our combined approach is to ensure that the schools, health facilities and integrated flooding solutions are:



Resilient

Standing the test of time and available for future generations to learn, recover and live without fear of the next climate or seismic event



Flexible and adaptable

Designed to be easily expanded or modified in the future, maximising their operational life, providing appropriate, high quality facilities for local communities well into the future



Functionally appropriate

To ensure that the facilities achieve the best possible outcomes for the communities they serve – better education for pupils, better and swifter recovery for patients and improved safety for people, homes, businesses and public services



Human centred

Ensuring the design of facilities and infrastructure is focussed on people, staff and their need to do the best job possible



Sustainable

Reducing materials, energy use, waste and ensuring the longest life for the infrastructure with low costs of upkeep and operation



Provincia de Casma
Departamento de Ancash

Education facilities

The UKDT is supporting the ARCC with the reconstruction of 74 newly built and retrofitted schools across the northern half of the country.

At the beginning of the programme the UKDT worked with Peru's Ministry of Education to improve the standard design for schools, called the 'Basic Reconstruction Module' (BMR) and the production of design guides. This approach was then applied to the detailed design of

the schools with the G2G portfolio, while also guiding the design of other schools across Peru.

This second year has seen the UKDT supporting the ARCC with continued design guidance and assurance and the construction and handover of the schools into operation.

Over the last year our role has been to assist the ARCC to safely deliver the educational

facilities and to assure and showcase the sustainable and resilient design aspects that our team has helped to integrate.

The schools the UKDT has helped to deliver have been designed from the outset to be resilient and provide a place of refuge for local communities in the event of another El Nino or earthquake, for example.



22

Completed schools



10

Nearing completion



15,414,000

Hours worked



13,260

Number of pupils benefitting

...with changes



Resilient

- Identification of hazards, including floods and landslides – analysing potential future flood levels and raising the ground floors so that they are not affected by future floods, while ensuring accessibility to all pupils, teachers and parents
- natural light, also contributing to a welcoming space that is conducive to learning
- Landscaping – outdoor areas within school grounds have been used to provide learning spaces. Slopes and vegetation have also been used to help prevent flooding and make the school more resilient

Flexible and adaptable

- Modular design for efficient construction and easy adaptation, and also designed to be a place of refuge and safety in the event of an emergency

- Safer building design – reduced escape distances in the event of an emergency

Sustainable

Human centred/Functionally appropriate

- Natural ventilation and lighting – using overhangs, shade and louvered openings to provide a natural flow of air and a comfortable temperature for learning, without expensive air conditioning systems. Large windows to maximise the use of
- Simplified school design from a gable pitch to a singled pitch – improving natural lighting, airflow, structural performance and ease of construction
- Durable concrete – to last much longer and require less maintenance
- Designing for the full life cycle of a school, from planning and construction through to long term operation and maintenance

Health facilities

The UKDT is helping the ARCC to design and construct 18 health facilities in some of the most remote parts of Peru, bringing high quality, accessible healthcare right to the heart of local communities.

Healthcare facilities are being designed and built to international standards of healthcare provision and resilience, adapted to the local context. These standards have been embedded through UKDT design processes and guides.

Building Information Modelling has been used on all projects to make design and construction more efficient and leave a legacy of asset information.

Three healthcare facilities have been added to the programme this year and two healthcare facilities have been completed and opened. They represent a step-change in the quality of healthcare facilities in remote areas of Peru and the UKDT are proud to have supported their delivery.

Work is well underway, at an unprecedented pace for Peru, on two major facilities in Piura region, to the north of the country, Chulucanas and Sullana hospitals, which will alone provide healthcare for nearly one million people.

Over the course of the year, we have continued to support the delivery of the healthcare facilities, working with staff to facilitate the transition from the old facilities to the new to help ensure they are ready for operation.



2

Completed health facilities



4

Nearing completion



11,000,000

Hours worked



3,445

Patients benefitting from completed facilities



...with changes

Resilient

- Greater resilience in building services to ensure hospitals and health centres not only withstand major weather or seismic events but are able to continue to serve their communities.

Flexible and adaptable

- Modular design and efficient use of space to enable expansion and adaptation for provision of future health services
- Design for future pandemics

Human centred

- Light, welcoming and accessible facilities designed to put patients at ease and maximize privacy – with landscaping of outdoor places where possible to aid recovery and recuperation
- Hospital entrances, departments and facilities located logically so that they are accessible, minimising long

- distances between patient and treatment

Functionally appropriate

- Considered design that supports the delivery of high quality healthcare, supports patient recovery and ensures separation between those seeking care and those recovering from illness.
- Clinical rooms arranged identically to increase efficiency of treatment and avoid clinical mistakes

Sustainable

- Facilities designed from the outset to be easily expandable to cater for growing populations without any interruption of important healthcare services
- Sustainable drainage and natural temperature reduction for buildings through rain-gardens in external areas, green roofs and green courtyards

Integrated (flooding) Solutions and a national early warning system

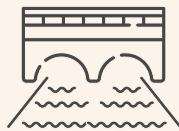
The integrated (flooding) solutions have the longest lead-in times of all the projects that make up the ARCC programme. They are the most complicated and cover 17 river basins, 5 gullies

and 7 cities, an extremely large area of Peru, will protect 16 million people from flooding.

Integrated Solutions' include:



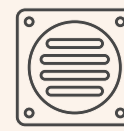
River defences to ensure that rainwater is controlled within the river channel and does not flood vulnerable areas



Dams to store the water and slow its release



Gully control, creating diversion channels to direct floodwater away from critical infrastructure and communities



Integrated drainage systems in urban areas to mitigate the critical human and economic cost of urban flooding



Natural infrastructure including reforestation and creation of natural terraces, to slow floodwaters and reduce earth movement during earthquakes



Installation of an integrated national early warning system, including radar technology, to alert vulnerable communities and allow them to get to areas of safety ahead of adverse weather events



Development of digital tools, including a social cost/benefit analysis to inform investment decisions.



16
Number of contracts awarded



10
Number of companies/consortiums awarded contracts



4 months
Average duration of procurement



15
Number of projects on, or with access to site



5,000,000
Hours worked



The Piura River and Urban Drainage masterplans

In October the UKDT delivered comprehensive flood defence masterplans for the Piura region to the ARCC.

The masterplans are the culmination of thousands of hours of work to model the Piura River basin and identify flooding infrastructure that will protect millions of people living in the Piura region from future El Niño and climate change weather events.

The masterplans, a critical extension of the existing UKDT scope, were devised by some of the most talented and experienced flood experts in the world, with the support and input of local stakeholders and experts who all came together to provide a sustainable future for Piura.

River plan stats:

36
chapters

126
proposed interventions

> 1 million
people protected

In our second year the UKDT has supported the ARCC to continue the procurement and delivery of these large-scale pieces of work. We have continued refining the requirements for the designs and the approach to the infrastructure, while supporting the first batch of projects that have entered construction.

As well as minimising the damage of natural events in the areas we are currently working, we have developed a range of guidance documents and worked in a completely open and transparent way with our ARCC colleagues to embed an international best practice approach to resilient infrastructure.

Early warning systems

Early next year (2023), the ARCC will begin to install the radar equipment for the Early Warning Systems.

These systems are designed to monitor and track natural events such as heavy rainfall that could cause people and communities harm from land-slides, mass movements of material and of course, flooding.

The systems will then trigger a public notification system to ensure people are able reach a place of safety before the floodwaters arrive.

The installation of these systems marks an important moment of the G2G and our work together, and the future protection and resilience of communities across Peru.

Knowledge Transfer

The proactive and sustained transfer of knowledge from the UKDT to local, regional and national professionals, leaders and other stakeholders is one of the most important aspects of our work.

The digital and project management tools and transfer of specialist knowledge to thousands of public officials, contractors and industry professionals has left a powerful, sustained legacy of increased capacity to deliver infrastructure and major programmes.

Over the last year the UKDT has continued to transfer knowledge to individuals in more than 100 public and private organisations in Peru through informal and formal courses, face-to-face sessions and seminars, all collected for future use through an online learning portal.

Knowledge transferred:

Formal training:



113

Courses



294

Modules



11,765

Attendance

Informal training:



135

'Café' sessions



1103

Workshops



136

Written guidance



85

Q&A sessions



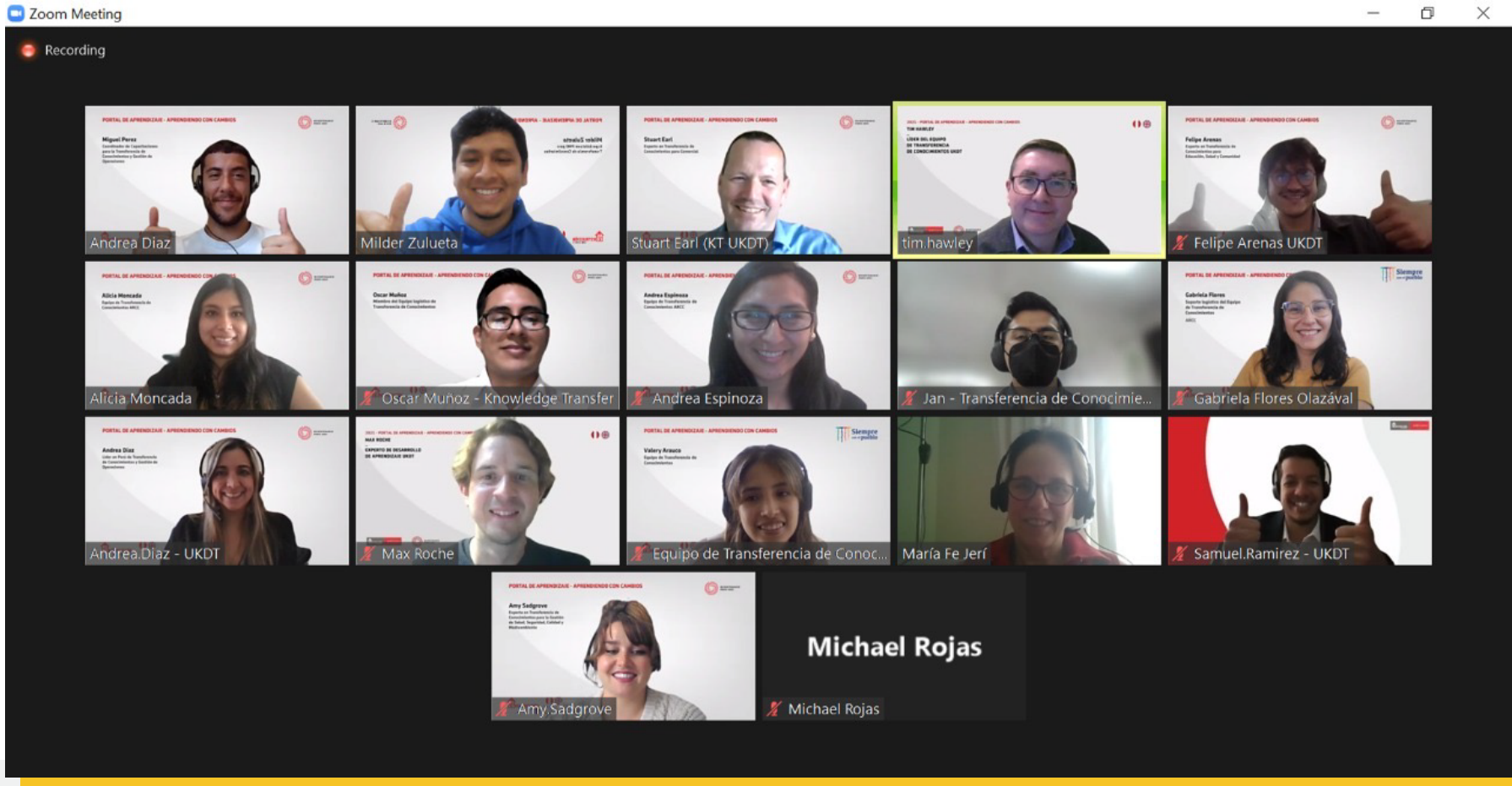
5

Communities of Practice



48

Site inspections (health and safety)



One of the major highlights of the knowledge transfer workstream for 2022 was the **Executive Programme on Sustainable Urban and Regional Infrastructure Planning**.

The UKDT partnered with LSE Cities at the London School of Economics and Political Science (LSE) to design a tailor-made six-month training

programme which was delivered to over 350 public officials from the Peruvian Government and from across the regional municipalities.

The training programme set out to build the technical capacity of ARCC and other stakeholders in implementing concepts of

sustainable planning across all reconstruction projects that are part of the G2G agreement, and to empower them to apply new frameworks and become more creative and inclusive in the decision-making process for future infrastructure projects in Peru.

PMO *and the digital legacy*

In the first year of partnership between the ARCC and UKDT we helped to build bespoke programme management systems to streamline project controls and reporting systems and design and assurance processes

These systems enable and track all the key elements of the programme required for successful delivery such as costs, risks and schedule management.

Collectively, the systems provide a 'single source of truth' on the performance of the programme, including the operational data coming from the contractors working on our sites across Peru.

Collaboration between the ARCC, UKDT, contractors and other partners was facilitated through a common GIS data platform,

PowerBI data reporting and shared online communications, collaboration and document management systems. The shared digital platform for design reviews alone enabled 75,000+ comments on 15,000 documents and 193 BIM design models.

In our second year the UKDT has worked closely with the ARCC to transfer the majority of these systems, processes and procedures over to the ARCC's programme management office.

Due to the success of the transfer and the embedding of knowledge and skills within the team, the UKDT no longer need to provide day-to-day support to the team.

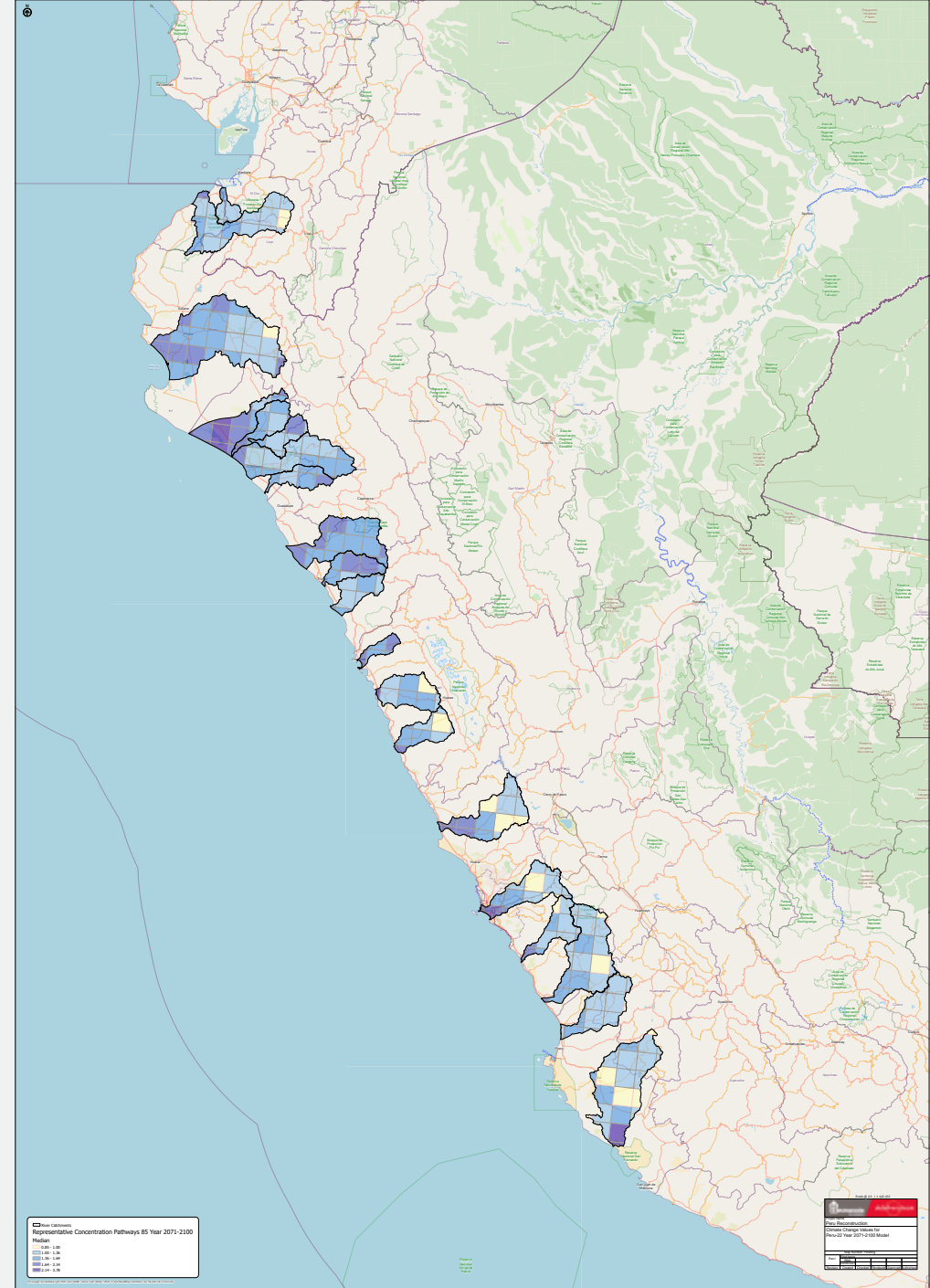
The Future *the infrastructure taskforce*

Last year the UKDT made some suggestions that could be implemented to ensure successful infrastructure planning and delivery for Peru.

These recommendations remain relevant and we are working closely with the UK Embassy in Peru through an Infrastructure taskforce with the Government of the Republic of Peru to continue to support, accelerate and embed progress.

The recommendations are to:

- Maintain the independence of major infrastructure programmes to ensure that they are focussed on their core objective of delivery
- Use the same procurement processes used by the UKDT on the ARCC programme for all infrastructure projects, to ensure transparency and the accelerated appointment of contractors
- Mandate the use of collaborative forms of contract such as the NEC for Government infrastructure projects and promote their benefits to other parts of the construction industry at all levels, including unions and trade bodies.
- Continue to champion an approach that ensures climate resilience, sustainability and whole life costs are embedded into the planning and design of infrastructure assets.
- Expand the use of the knowledge transfer platform, programme systems and digital tools developed through the G2G to the delivery of all major public programmes and infrastructure projects.



Two years of the G2G Agreement and the support of the UKDT

We are extremely proud of the work that we have achieved together with the ARCC:

Fast-track, transparent procurement

The rapid and efficient appointment of contractors through a rigorous process that can be trusted to deliver quality contractors for the best value

Bespoke design advice tailored to local conditions and needs

Ingenious, sustainable and resilient design solutions that take account of local needs and environments to build infrastructure and embed approaches that will benefit communities for generations to come

World-class programme management systems and tools

Digital products maintained and managed by expert programme management specialists to track the projects and provide continual monitoring and analysis

Best practice project management

Advice and support to ensure projects are delivered safely and efficiently. Proactive project management and solution-focussed experts providing day-to-day assistance.

Knowledge transfer and legacy

Upskilled and confident colleagues ready to deliver future infrastructure programmes, building local capacity and a legacy in Peru for generations to come.

The *UKDT*



Mace is a global company of experts in shaping and making the built environment. It provides development, consulting, construction and operations services for many of the world's most inspiring building and infrastructure projects and programmes – from Olympic parks and iconic skyscrapers to state-of-the-art data centres, schools, hospitals and homes.

www.macegroup.com



Dedicated to sustainable development of the built environment, Arup is a collective of over 16,000 designers, advisors and experts working across 140 countries. Founded to be both humane and excellent, we collaborate with our clients and partners, using imagination, advanced technologies, and rigour to shape a better world.

www.arup.com



Gleeds is an international property and construction consultancy with over 130 years' experience in the property and construction industry. With over 1900 dedicated staff across six continents and over 70 offices, Gleeds prides itself on being a global business that is structured to act and think locally.

www.gleeds.com



ukdeliveryteam