



# Reconstructing *hope* –

One year of the  
Government-  
to-Government  
partnership between  
the United Kingdom  
and Peru

UKDT's advice and support have been vital to work within a transparent contractual framework, which gives confidence to suppliers, contractors and other stakeholders. Their experience in project management has also been very important. The synergy generated by working together with ARCC's team of Peruvian professionals makes us pioneers in the delivery of mega-projects and generates greater confidence in public management in Peru.

**Dra. Amalia Moreno**

Executive Director, Autoridad para la Reconstrucción con Cambios



Members of the UK Delivery Team, ARCC and the UK government at the site of the Sullana hospital

# Accelerating progress, building a *lasting* legacy

**The Peru reconstruction with changes programme will change the lives of hundreds of thousands of Peruvians, and every member of the UKDT team feels proud to be a part of it.**

It is not just the students using the schools, the patients being cared for in the hospitals or the communities protected by new flood defences that will benefit from our work.

It is also the people from local communities that will get jobs and skills that they can use for the rest of their lives. It is local businesses and supply chains that will get a boost from the programme that will help them thrive and prosper. It is local professionals that will benefit from the knowledge and expertise they will gain from the UKDT.

Our work with the ARCC will help Peru unlock the infrastructure gap that challenges the nation.

The foundation of the partnership between the United Kingdom and Peru is the legacy that we will leave and the knowledge that we are building with our colleagues and partners to carry on the work after we have gone.

In the last year, we have hit the ground running. We have mobilised a team of over 300 specialists, with more than a 100 working directly with our ARCC colleagues in Lima, in Piura and in Trujillo in northern Peru. The teams have worked together effectively, even while the COVID-19 pandemic has put up barriers to international travel and in-person support.

Through fast track reviews and procurement, we have been able to appoint contractors and move quickly to construction. We are also applying international best practices to develop improved design standards and ensure these are used by our contractors. Running through all of this work is our shared commitment to infrastructure that is sustainable and more resilient to climate change.

We have designed bespoke systems and processes to support our ARCC colleagues to deliver the vital infrastructure quickly. This approach also ensures the projects are safe, resilient and delivered in a way that respects neighbours and local communities.

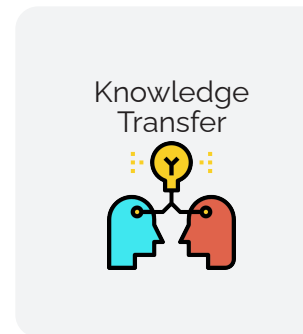
This report marks the progress the UKDT has made during its first year of collaboration with ARCC. We have achieved a lot and there is still much to do. The team is more focused and committed than ever to get on with the job and support Peru in reconstructing vital infrastructure and reconstructing hope.

**Kate Flint**

Programme Director,  
United Kingdom Delivery Team

# A nationwide programme

The Government-to-Government (G2G) agreement, signed June 2020, is on track to deliver schools, healthcare facilities and integrated flood defence solutions across Peru.

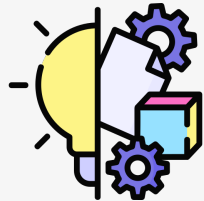


Across the programme, we are transferring our knowledge to local partners, leaving a legacy so that local professionals can efficiently deliver sustainable and resilient infrastructure in the future.

All facts and figures in this document are correct as of 1 October 2021.

# A year of progress

In its first year, the UKDT has mobilised and applied international best practices to accelerate the Peru Reconstruction with Changes Programme. These are just some of our achievements in the first 12 months.



Since June 2020 the UKDT has mobilised **100 specialists** to work alongside ARCC colleagues in Peru, supported by **200 experts in the UK** and globally



**41 contracts** awarded for 103 projects since mobilisation

**16 companies and consortiums**

onboarded through a rigorous induction process



**90 sites** handed over to contractors with work underway on **44**



**5 temporary hospitals** completed in half the usual time



Created **over 20,000 jobs** so far, with thousands more job opportunities available for people in local communities, contributing to **economic investment** in the regions



Approved **65 Good Neighbour Plans** setting out how contractors will work with and respect local people and communities



**150+ formal training modules** and **600+ informal workshops** and training activities developed and delivered to transfer knowledge and build capacity for future programme delivery in Peru

*and the work continues...*

# Safer and greener schools for generations to come

The UKDT is supporting ARCC with the delivery of 74 newly built and retrofitted schools which will be safer, greener and sensitive to the needs of children.

To achieve these objectives, the UKDT and ARCC reviewed and improved the 'Basic Reconstruction Module' (MBR) - a standardised design approach for schools in Peru.

The UKDT worked closely with the ARCC, Peru's Ministry of Education, designers and contractors to improve the MBR. We also analysed Peru's diverse terrain and the common natural hazards that pose risks to the schools, and applied international best practice to make the improvements.

These improvements include:

- Master planning the whole school site instead of focusing solely on school buildings
- Improving the lighting and ventilation within the buildings to reduce energy use and enhance the teaching and learning environment

- Defining new planning, design and construction solutions to minimise risks from hazards such as earthquakes, flooding and other impacts of climate change

This improved design approach will not only be used for the 74 schools being built by the G2G, it will also be rolled out across Peru for all future schools.

## Sustainable and resilient schools

Sustainability has been built into the improved MBR design for schools and is supported by a suite of practical guides and tools. The UKDT has used digital tools, including Building Information Modelling (BIM) and

Revizto, to support contractors in the development of detailed designs and construction information. This results in schools using less resources and energy. By using natural light and ventilation, we are also improving the learning environment

The complex hazards facing the schools such as flooding, earthquakes and the impacts of climate change were assessed and factored into the improved modular design. This has included raising schools above ground levels, installing protective earthworks and orientating buildings to manage natural light.

**“The G2G partnership is an opportunity to demonstrate how quality design and construction can be achieved in a major public school reconstruction programme. This unique partnership and focus on designing for the whole life cycle of sustainable and resilient facilities is a model for school construction in Peru.”**

**Hayley Gryc**  
Lead, Education

Rendering of a school designed with the support of the UKDT

## A legacy for the next generation of schools

The UKDT has developed a suite of technical guides to inform the delivery of new schools across Peru. These guides include:

- An improved and optimized Basic Reconstruction Module (MBR) providing a model concept design for schools
- Guidance on developing effective operational and maintenance plans for long term sustainability
- Design criteria that integrates resilience, climate change, sustainability and inclusivity
- Planning and design guidelines to help contractors adapt the concept design to specific projects



## Did you know?



**47,000+**  
school places in  
the first tranche  
of schools



**74**  
schools being  
rebuilt or  
retrofitted



**8**  
regions  
benefitting  
from schools



**100%**  
sites made  
available to  
contractors to  
commence work



**2,077**  
students in Escuela  
Zoila Hora De Robles  
in Chepen, La Libertad -  
the largest facility

# Improving healthcare to improve lives

The G2G is accelerating the construction of nine hospitals and six health centres across five regions. These are being built and equipped to international standards for healthcare provision and resilience.

The UKDT has accelerated procurement, developed technical guidance and design reviews, created tailored project management processes, and worked with the ARCC to help build local knowledge to deliver healthcare projects in the future.

Contractors are in place, designs are being finalised and work is underway on the sites for all of the health centres and the first six hospitals, in Piura, Ancash, Lima and Lambayeque regions.

UKDT specialists are providing detailed advice into the designs for hospital and health centres through a digitally enabled process. We have also developed a design guide that can be used in future healthcare projects across Peru, which will be supported by bespoke training for the

preparation of and transition to the new facilities.

## Rapid construction of temporary hospitals

Five temporary facilities are being built to maintain healthcare provision during construction of the permanent hospitals. 130,000 people now have had access to high-quality facilities in Pomabamba and Yungay.

UKDT specialists worked closely with contractors on the design and construction of efficient and accessible temporary hospitals. These were built twice as fast as usual through the use of modular construction.

Miguel Ángel Graciano Fermin, Director of the Pomabamba Hospital said, "This temporary hospital already gives us hope for the future modern hospital. It was over 30 years ago that our old hospital was built. The population is now being treated in a new environment and with new equipment which is a step change from what we used to have."

**“Together with the ARCC we have appointed the right contractors, introduced a collaborative mindset to contract management and started work much sooner than typically achieved in Peru.”**

**Daniel Glenn**  
Lead, Healthcare Delivery Assurance

**“We are working with the ARCC to create facilities that are resilient and accessible, with the needs of patients at their heart. Together we are improving lives with high quality healthcare.”**

**Katie Wood**  
Lead, Healthcare Technical Assurance





Temporary hospital in Matucana built in half the usual time

## Guiding a future generation of health facilities

The UKDT developed a set of technical requirements and a detailed design guide to set the standards for the contractors' designs of new hospitals and health centres.

The guide incorporates international best practices and the unique characteristics of Peru to ensure that the new hospitals and health facilities are resilient, flexible, adaptable, functionally appropriate, patient-centered and sustainable.

By supporting the detailed design of health care facilities, the UKDT is embedding knowledge of best practice in healthcare design among Peru's health organizations and contractors. Our Delivery Assurance teams are also working closely with their ARCC counterparts to efficiently deliver the hospital and health centre projects.

Our teams are embedded within the ARCC organisation, and together we monitor the progress of contractors and troubleshoot issues as they arise.

## Did you know?



9  
new  
hospitals



6  
new health  
centres



5  
temporary  
healthcare  
facilities



200  
adult beds at the  
Sullana hospital



70  
beds for children  
in the Sullana  
hospital

The Sullana hospital in Piura is the largest hospital in the G2G programme



Construction is underway on the Chulucanas Hospital. When complete, this hospital will provide essential healthcare services to local communities.

# Sustainable water infrastructure to protect and enhance lives and livelihoods

The G2G agreement is accelerating the construction of sustainable and integrated flood prevention solutions, to protect and enhance lives, homes and vital services against catastrophic weather events,

This programme will improve flood defences for 17 high-risk river basins and 5 gullies, and implement new urban drainage systems in seven cities, all supported by a new nationwide Early Warning System.

UKDT specialists are also working with local experts to develop an integrated master plan to improve the Piura river defences and city urban drainage.

Through a fast-track procurement, contractors have been appointed to design and deliver flood prevention solutions for 11 river basins and 3 gullies to-date. Procurement is also underway for a nationwide Early Warning System and flooding prevention solutions for three river basins, two gullies and urban drainage for three cities.

The UKDT is working through the design development stages with contractors, applying international best practice and bespoke digital tools to enable the ARCC to visualise and select the most efficient design options that consider the impact

on the environment as well as the potential community benefits and economic challenges. This includes introducing the use of long-term climate data in the development of flood defences.

**“The UKDT specialists have been working closely with the ARCC and contractors to ensure that all proposals for river and gully defences, city drainage works, reforestation of river basins are designed and delivered focusing on resilience and long-term sustainability to protect communities, public facilities, agriculture and businesses.”**

**Alejandro Gutierrez**  
Lead, Integrated Solutions

## Early warning for a swift and safe response to danger

Following a UKDT review, the ARCC is set to invest in a national integrated Early Warning System that will better equip and prepare 16 million people living in high-risk areas to respond to natural disasters.

The single connected system will cover 17 high-risk river basins with up to nine new weather radars and hydrometeorological stations to improve monitoring and forecasting capabilities.

The system will also include new emergency command centres, new telecommunications infrastructure and a new siren system. Training for government agencies to manage the new systems will be built into the approach, alongside public education and practice drills to improve the ability to respond to the alert and warning messages.

A contractor will be appointed shortly and this will be followed by detailed design work ahead of an accelerated two-year delivery starting in 2022.

### What is the Early Warning System?

*The Early Warning System is an integrated communication system to help communities prepare for hazardous climate-related events.*

“We have worked hard to build a relationship with the government and their agencies to agree plans for an ambitious and comprehensive Early Warning System that is world-leading in scope and scale.”

**Ian Carradice**  
Project Lead, Early Warning Systems

## Did you know?



**11**  
river works have been procured and awarded



**3**  
gully works have been procured and awarded



**500km**  
length of flood protection works



**7**  
new urban drainage systems



**16,000,000**  
people will be covered by the new Early Warning System



## Building natural resilience

Millions of trees will be planted and a variety of terracing, earthworks and soil conservation techniques will cover 51,000 hectares to reduce the risk of flooding across 17 river basins.

This ecological approach will avoid expensive construction while capturing carbon and creating new green and biodiverse spaces for improved agricultural practices and increased community resilience to climate change.

Around 56 million tree seedlings will be planted after being acclimatized in high-tech local nurseries. The creation of these nurseries and management of these new areas will create a new sustainable approach to the planning and implementation of nature-based solutions and forest husbandry in Peru.

The work represents significant investment that will train and employ thousands of people Peru.

# A scalable model for future programmes

“The UKDT worked closely with the ARCC to create a programme that is scalable and provides Peru with a legacy management framework which can be easily extended to other projects allowing them to benefit from this robust management framework.”

**Helen Latham**  
Lead, PMO

The Programme Management Office (PMO) is the control room of the G2G programme. It defines and manages all the project management procedures across the entire programme and captures and processes all the operational data coming from the contractors working on our sites across Peru.

UKDT specialists helped the ARCC set up the PMO and all the processes and procedures within three months of mobilisation - half the typical time it would take for a programme the size and scale of the G2G.

The first task for the PMO team after mobilisation was to establish a baseline defining the scope, cost and schedule for the 100+ projects that make up the G2G programme of works. The UKDT supported the ARCC team in quickly defining the baseline so that together we can measure the programme's performance and progress.

## Programme Delivery Management System

If the PMO is the control room, the Programme Delivery Management System (PDMS) is the brain and is made up of thousands of data points that have been developed since the start of the programme.

The PDMS system, known as PortARCC, contains all the processes and procedures that govern the programme. It also captures all the data generated by the contractors so that a dashboard showing progress is regularly updated. The dashboard, created using PowerBI, allows the senior leadership teams of the UKDT and the ARCC to analyse trends and identify any issues that need to be addressed before they can affect the delivery of the programme.

The UKDT have also produced activity guides for all the processes and procedures. These are contained within PortARCC so that everyone on the programme can understand the exact requirements. Every

process includes a 'lessons learned' step which allows for continuous improvement to be recorded and fed back to improve efficiencies.

PortARCC is also the intranet for everyone working on the G2G programme from the ARCC and UKDT. In addition to the activity guides, processes and procedures, it has a news section and allows the two teams to operate as one, sharing and collaborating to deliver the programme objectives.

## Northern 'hubs'

Within weeks of mobilisation the UKDT supported the ARCC in setting up two northern hubs so that the programme management team is close to the projects and the contractors delivering them.

The hubs in Piura and Trujillo are our connection to the professionals on ground and support the ARCC teams in managing the projects.



## Being a good neighbour

The UKDT has worked closely with the ARCC to implement 'Good Neighbour Plans' with all contractors working on the programme. Each contractor is given guidance on how to draft their plan, which sets out how they will work with local communities and how they will keep them informed about the projects in their area, so that the local communities can go about their daily lives with the least amount of disruption. The ARCC, with support from the UKDT, reviews and approves all Good Neighbour Plans, which are then implemented across all the live projects that make up the G2G.

A stakeholder engagement event in Piura



### Cost and contracts management

Our PMO cost and contract management teams have provided ongoing cost planning, cost management and cost reporting that has both improved transparency and visibility of expenditure. This has supported more agile management of funds across the programme and will ultimately provide greater benefits from the investments. The use of aligned work breakdown structures across the programme architecture (cost, time and quality) provides effective up to date reporting and future benchmarking opportunities.

### Reporting and transparency

The data captured by the PMO is used to monitor progress on all the projects that make up the G2G programme. It is also used to ensure total transparency.

The UKDT, working with the ARCC, have allowed the Peruvian government's auditors, the Controlaria, unfettered access to the programme's data and metrics. This is the first time that the country's auditors have had full simultaneous access to this type of information on a government programme. This move has reduced information access requests by 75% and set the precedent for future programmes.

# Using digital solutions to create *safer communities*

To support the efficient and effective delivery of the programme, the UKDT has developed and delivered a range of digital solutions. These solutions support a variety of functions across the programme and throughout our supply chain.

This integrated suite of digital solutions has been built on a common data platform to promote collaboration and ensure consistency.

**“We have implemented best-in-class technologies that help reduce risks and support effective decision-making to enable efficient delivery of the programme. The digital foundations we built for this programme will drive innovation in the country to bring greater value now and in the future as a legacy.”**

**Oliver Sherrington**  
Lead, Digital solutions

## The digital platform

### Atlas

A Geographic Information System (GIS) integrated with a web viewer and suite of mobile applications that allows users to store, explore, analyse and model data across our projects. Users can collect data on mobile devices from construction sites to build a rich picture of project information and greater context.

### Learning with Changes Portal

A digital hub to manage training delivery, providing a central repository for learning materials, capture of lessons learned and discussion forums for specialists, enabling a legacy of ongoing learning.

### Stakeholder Management Platform

A database containing stakeholder information, interests and communications that creates a multidimensional picture of stakeholders to enable effective engagement in the programme.

### Design Review Digital Platform

Enabling a collaborative review of models, drawings and documents, Revizto, with custom developed automation workflows and progress dashboards, reduces manual work, reduces errors and increases the time available to focus on the designs.

### Social Cost Benefit Analyser

A decision-support tool developed on Atlas that enables ARCC and UKDT to easily assess and understand the benefits of different intervention options for complex flood mitigation projects based on the cost, land use and local impact of flooding in the river basins.

### Programme and project management

A suite of commercial, off-the-shelf solutions such as Primavera P6, Risk Hive and Aconex that support the PMO delivery and feed into PowerBI to deliver visual data for project controls reporting.



# Empowering future generations

“Our goal is to transfer as much of our collective knowledge as we can to our partners. We effectively want to put ourselves out of a job, so that local colleagues and partners can take on the next programme challenge.”

**Tim Hawley**  
Lead, Knowledge Transfer

One of our key objectives is to transfer the international best practice knowledge from UKDT specialists to their ARCC counterparts and other local partners. This is so that local professionals will be able to deliver future infrastructure programmes within Peru.

To undertake the knowledge transfer, the UKDT is using a 70%-20%-10% approach.

The '70%' refers to practical on-the-job learning of ARCC colleagues applying what they have learned working alongside UKDT specialists.

The '20%' refers to the informal social learning from peers and experts – these could be coaching session over a coffee or lunch that focuses conversations on specific subjects. We have delivered over 600 of these sessions to-date.

The '10%' is the structured formal training given by subject matter experts in classroom style sessions. We have designed and delivered 74

of these formal training courses in areas such as baseline management, BIM and stakeholder engagement to name just a few.

The knowledge transfer part of the programme doesn't just include the ARCC colleagues but also includes partners in the supply chain such as local consultants, contractors and other public sector stakeholders.

To-date, we have issued more than 6,000 certificates to colleagues and programme partners.

In collaboration with the PMO team, the UKDT has put in place a maturity assessment model that covers not only processes but also people. The maturity assessment charts the progress of colleagues throughout the life of the programme.

The results of the last assessment show significant improvement in understanding of programme management practices - a sign that the transfer of knowledge is taking place between the partners.

## Did you know?



**74**  
formal training courses delivered by UKDT



**150+**  
modules in the formal training courses



**6,000**  
certificates issued since training commenced



**600+**  
personnel trained to-date



**50+**  
international experts supporting knowledge transfer

# Creating and enabling *resilient communities*

At its core the Peru Reconstruction with Changes programme is a commitment to building sustainable infrastructure and community resilience to the impacts of climate change.

Peru has supported international efforts to tackle climate change for almost 20 years. It has introduced national laws and has a countrywide adoption plan to mitigate its effects.

The UKDT and the ARCC have put sustainable development at the heart of the programme. The infrastructure provided will be resilient for current

and future generations, and help empower communities to adapt to the impacts of climate change.

This approach is built into every element of our work from the assessment of contractor capability and design guidance, through to construction oversight and planning for the maintenance of the assets.

More importantly, the G2G is transferring specialist and international best practice knowledge to increase the capacity of national bodies, contractors and communities.

This will embed approaches to

sustainability and resilience that will protect lives and livelihoods across the country.

## **Contributing to national carbon capture**

The planting of 56 million trees and seedlings as part of natural flood defences will capture an estimated 220,000 tonnes of carbon per year. This carbon capture will amount to 0.12% of Peru's national target emissions in 2030 while improving community resilience to floods and creating accessible green spaces for farming, the public and wildlife.

**“At its heart the Peru Reconstruction Programme is about creating a sustainable and resilient future for communities across Peru. Together, we are building on the country’s ambitions and instilling international best practice approaches that will ensure that the G2G projects are sustainable and resilient.”**

**Nic Merridew**  
Deputy Programme Director, UKDT



## Climate modelling for a resilient future

The G2G is ensuring that new river defences are built to withstand current and future weather conditions.

In a new approach for Peru, the G2G is designing river defences using long-term, forward-looking climate data rather than looking backwards at historic data.

The UKDT have worked with the ARCC and consulted with the national weather and hydrology service (SENAMHI) to create detailed and practical guidance on how to plan for future climate change.

UKDT specialists are also reviewing contractor designs to ensure that the river defences will protect communities, public facilities, crops and businesses considering climate change resilient proposals.

Image: An extract from our Atlas system showing potential effects of climate change in a river basin

# *Maintaining and building on our progress*

The key priority for the UKDT is to maintain the momentum and build upon the relationship that we have with the ARCC and with our partners here in Peru.

As more and more sites are passed to contractors and work continues in earnest, it will become increasingly important to keep track of progress on site and identify issues before they arise.

The UKDT's Delivery Assurance teams will continue to work closely with their ARCC Project Manager counterparts and will conduct frequent site visits to assess progress, foresee potential issues and help to troubleshoot those that arise.

## **Ideas for further consideration**

The G2G is providing the tools and the expertise for local professionals and organisations to independently procure, plan, deliver and operate sustainable and resilient infrastructure.

To build upon the success of the UKDT and ARCC partnership, we have compiled the following propositions that could be implemented to ensure successful infrastructure planning and delivery for generations to come:

- 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.



An aerial view of Matucana, Peru and the site of the temporary hospital



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.

The privately-owned company, headquartered in London, UK, has an annual turnover of £1.8 billion. Over 30 years, its growth has been fuelled by an adventurous spirit and the relentless pursuit of a better way. Today, the company employs over 6,000 people across five global hubs in Europe, Middle East and North Africa, the Americas, Sub-Saharan Africa and Asia Pacific.

[www.macegroup.com](http://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](http://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.

Working with clients in almost every sector, Gleeds services the entire project life cycle and categorises its offering into the following core areas: programme and project management, commercial and contract management, property and asset management and advisory.

[www.gleeds.com](http://www.gleeds.com)

Mural on a wall on the site of a new school in Catacaos in northern Peru



The logo features a circular arrangement of ten small red dots connected by thin red lines, forming a ring. The text "ukdeliveryteam" is written in a white, lowercase, sans-serif font across the center of this ring.

ukdeliveryteam