



DRUK PADMA KARPO SCHOOL

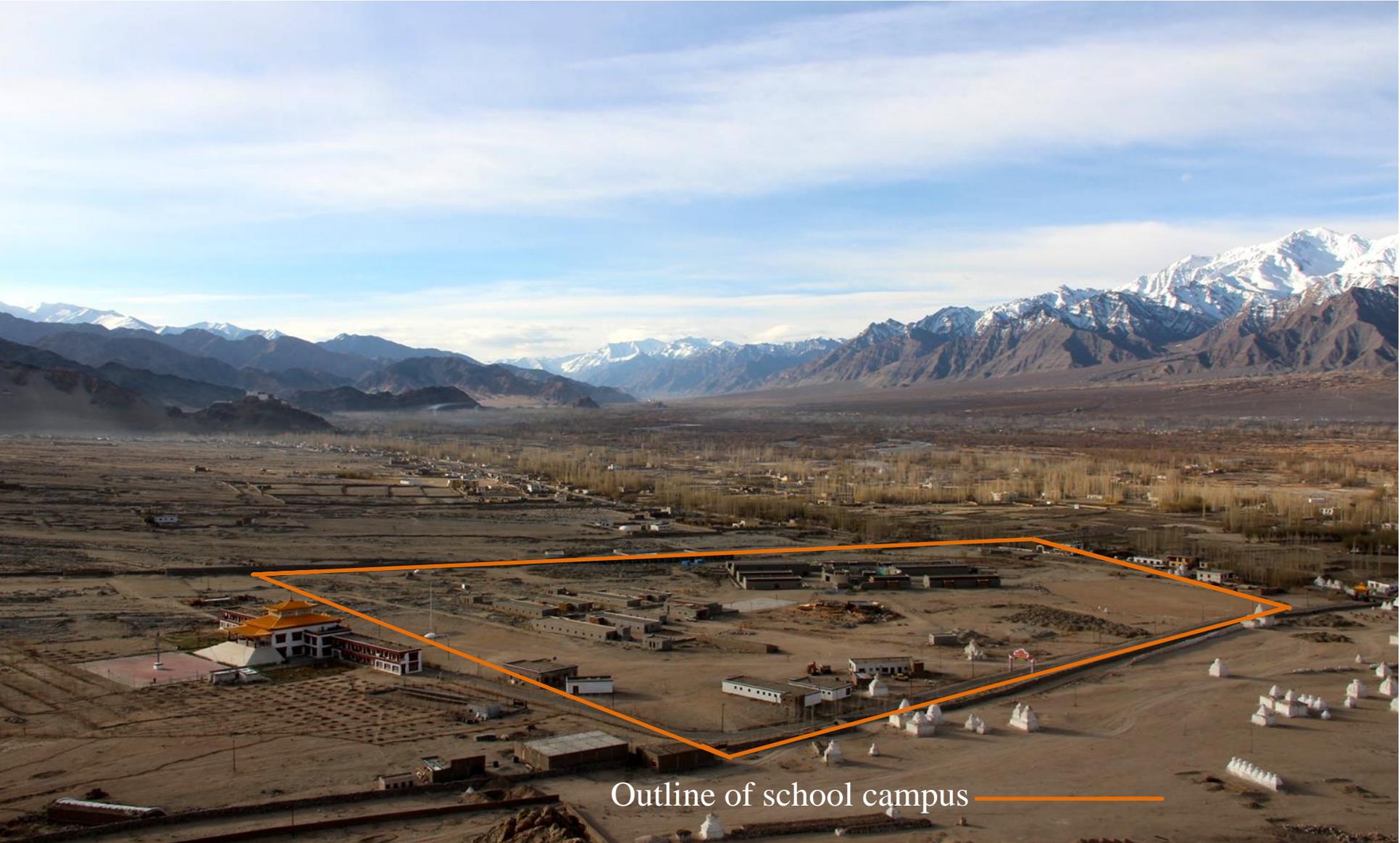
They, Indus Valley, Ladakh, Indian Himalayas

Protect a Culture

Build a Future

Druk Padma Karpo School

Formerly Druk White Lotus School



Outline of school campus

CONTENTS

- Location and history
- The students
- Award-winning Arup buildings
- The 2010 mudslide
- The mudslide repair & seismic upgrade programme
- Student activities
- Plans for the next 10 -13 years
- Project Team



Location of the School – High-altitude desert environment of Ladakh



HISTORY

- ❑ In 1992 villagers asked for a local school combining modern education and traditional values. A UK charity Drukpa Trust was set up to start the project
- ❑ Fundraising started in 1994
- ❑ School construction commenced in 1998
- ❑ Nursery & Infant school opened in 2001, with 88 students
- ❑ Continuous growth as the students progressed through Nursery, Infant, Junior, Middle and Secondary classes, to Matriculation examinations at age 16.
- ❑ Now has over 800 students. Over 240 have matriculated from the school going into work or further education. USD3.7 million investment up to 2018.

1992: The site for the Druk Padma Karpo School



29 YEARS LATER



27 classrooms in a 9-grid square mandala



Residences and dining for over 300 students

September 2001 – Nursery & Infant School Opening Ceremony



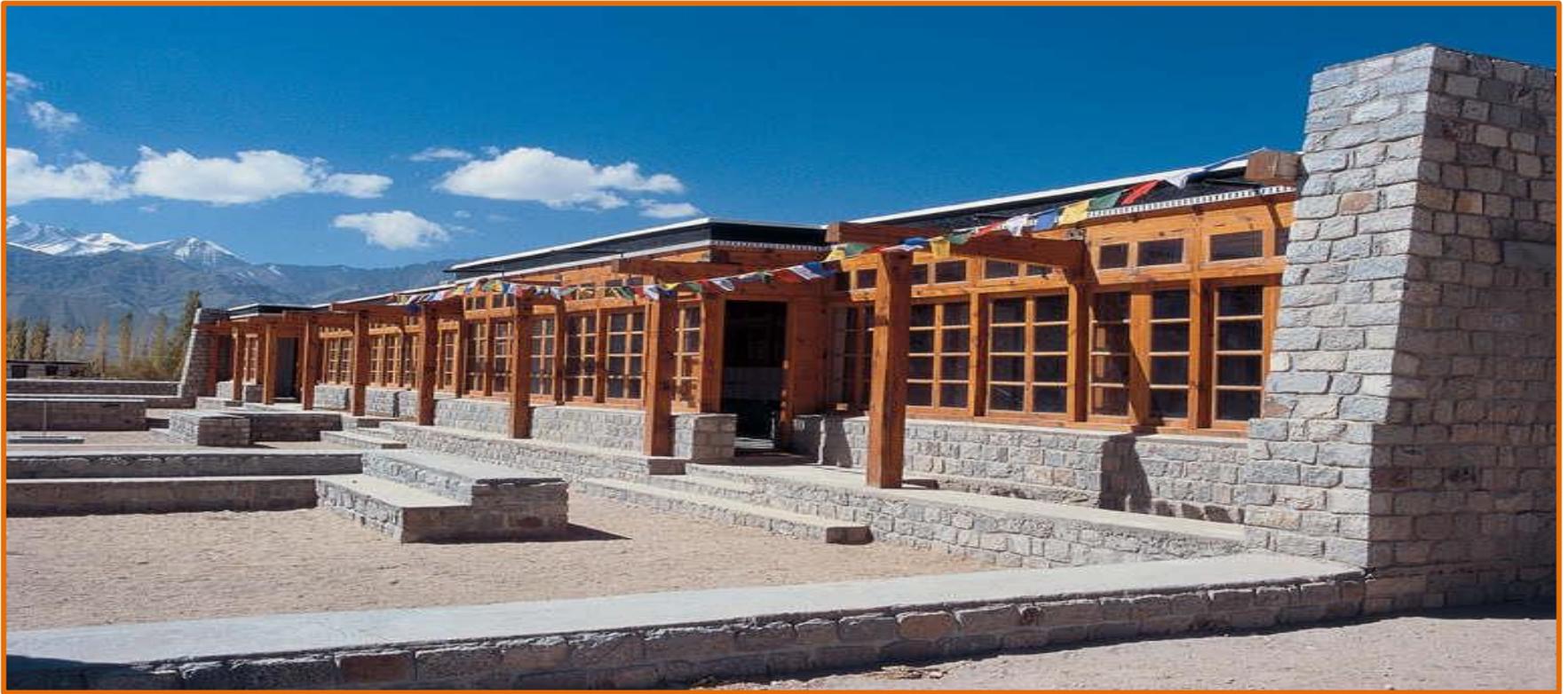
THE STUDENTS OF DPKS

- ❑ Many of the students are **first generation learners**.
- ❑ **Child-centred learning** is the focus for younger students, followed by the state curriculum up to age 16.
- ❑ Ladakh's **cultural heritage** is actively incorporated into many school activities.
- ❑ Students enjoy a great variety of **art, craft, drama, music, dance and many sports** as well as the core academic study.





ARCHITECTURE – THE AWARD WINNING ARUP BUILDINGS



FEATURES:

- ❑ The buildings are designed to perform to high standards
- ❑ Use both modern and traditional materials and building methods



- ❑ The buildings incorporate **natural lighting and heating**
- ❑ Buildings are a **prototype for energy efficient, self-sustaining buildings** in the region



- A resident engineer from Arup is on site working with the construction manager every year.

AWARDS AND RECOGNITION



- Since 2001
- ❑ **2013:** The International Architecture in Stone Award;
 - ❑ **2012:** The Emirates Glass LEAF Awards; ‘Test of Time: Environmental’ Award from the British Council for School Environments
 - ❑ **2009:** Design for Asia Grand Award; Award for ‘Inspiring Design - International’ from the British Council for School Environments
 - ❑ **2003:** BCCB - Large Consultancy Firm of the Year
 - ❑ **2002:** World Architecture Awards – Nursery & Infant School awarded: Best building in Asia, Best educational building in the world, Best green building in the world (joint winner)

THE DEVASTATING MUDSLIDE OF 2010



The wreckage and repercussions

- ❑ The night of the mudslide was an extremely frightening experience for the residential students and staff. Students were carried to safety across a raging torrent of mud, rocks and debris by a line of staff roped together.
- ❑ People all around sought safety on nearby high ground.
- ❑ In daylight the devastation was obvious. Classrooms, offices and some residences were filled with up to 1.5 metres of mud, the campus was covered with mud and debris, but the buildings were standing firm, unlike neighbouring mud homes that had been swept away.
- ❑ Students, staff and volunteers all helped to dig out tons of mud from the buildings.
- ❑ After a few weeks some classes were being held in tents and some non-damaged buildings re-opened.
- ❑ Buildings dried out for over six months.

The devastation



The clean-up



A **Defence Wall** was built in **2011/12** to protect the school from future mudslides – believed to be caused by changing global weather patterns.



Occurance of the Mudslide in the School's Infrastructural Timeline

1998: School construction commenced

2001: Nursery & Infant school opened with 88 students

2003: Residence 1 courtyard and kitchen opened

2004: Dining Hall part 1 and Junior School opened

2005: Residence 2 courtyard opened

2008: Science and art classrooms completed

2009: Residence 3 courtyard completed and two secondary school classrooms

2010: August - mudslide hit the school campus

2011-12: Defence wall built around much of the campus

2011: Four secondary school classrooms completed

2013: Two IT-enabled classrooms opened and Residence 4 courtyard completed

2014: Two secondary school classrooms completed, classroom total now 27

2015: Dining Hall part 2 opened

2016: Discovery of rotting timbers from the 2010 mudslide

2017: Mudslide repair and seismic upgrade programme started

2018: First of four eco-shower buildings completed

2019: Over 800 students at the school, aged 4-16. Over 240 have matriculated from the school into work or further education.

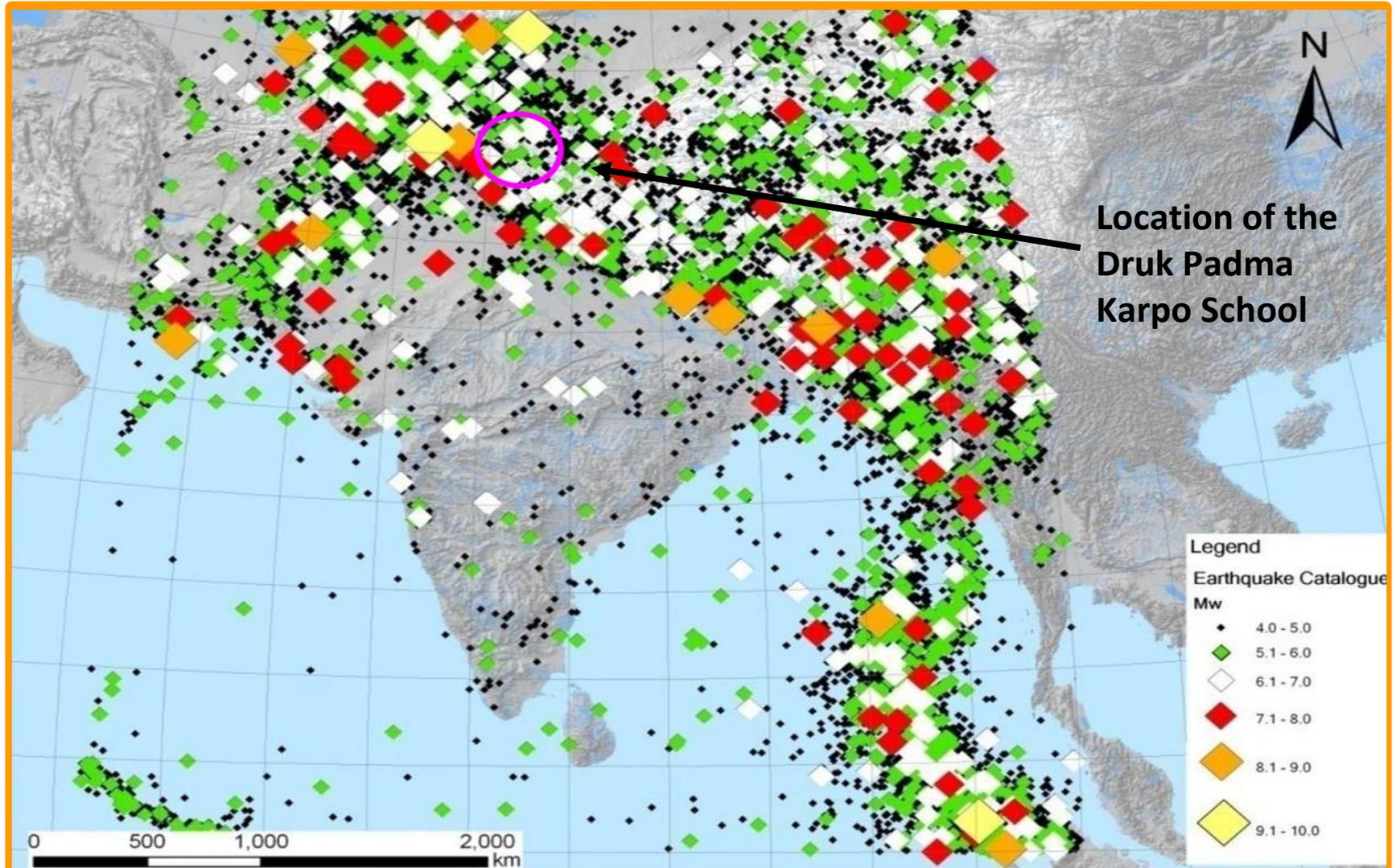
THE MUDSLLIDE REPAIR AND SEISMIC UPGRADE PROGRAMME



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NEED AN



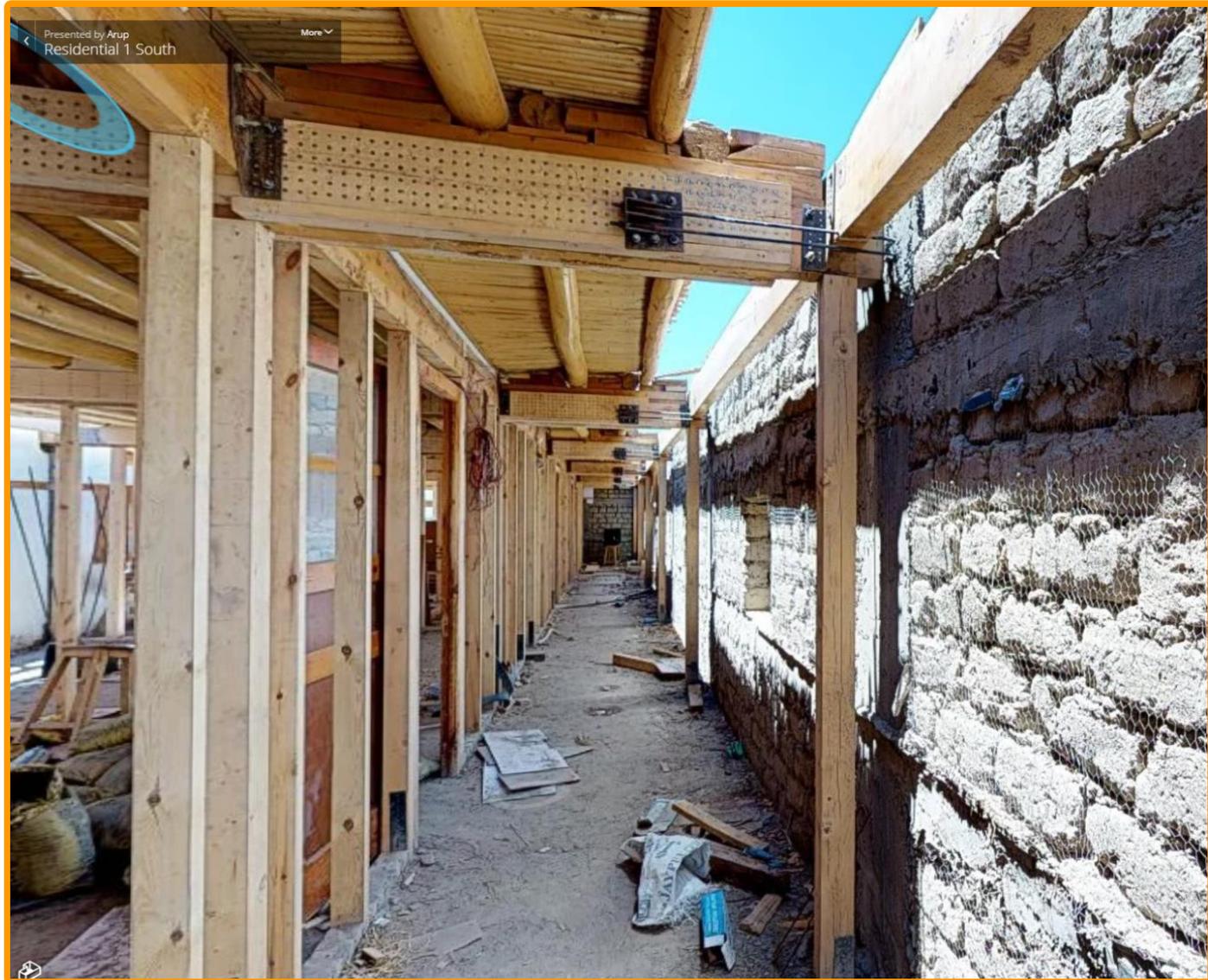
Latest research shows seismic risk **x10** greater than already designed for, so we are increasing resilience to seismic activity too.



Details of the Mudslide Repair and Seismic Upgrade works

- ❑ Replace rotten columns and isolate columns from the ground to prevent future rot.
- ❑ Make buildings more resilient in an earthquake by:
 - Reducing the weight of the heavy roofs.
 - Tying all elements together, so that the building works as one.
 - Increasing the number and strength of the walls and bracing systems.
 - Enabling the walls and bracing to absorb energy.

Upgrade Work in Progress



Strengthening Work



STUDENT ACTIVITIES

- The school remains fully functioning during the refurbishment work and students continue to enjoy a wide variety of activities as well as their academic study





MATHS LAB



HUMANITIES



SCIENCE



MUSIC



DANCE



SPORT

10-13 YEAR INFRASTRUCTURE PLAN

URGENT

1. Continuing the urgent seismic upgrade and mudslide repair programme
2. Build classrooms and facilities for 16-18 year olds - the Senior Secondary academic provision

IMPORTANT

1. Less urgent seismic upgrade and mudslide repair, additional offices, Principal's house and latrines
2. Build Multi-purpose/Community Hall
3. Continue the "Dragon Garden" landscape programme

SIGNIFICANT

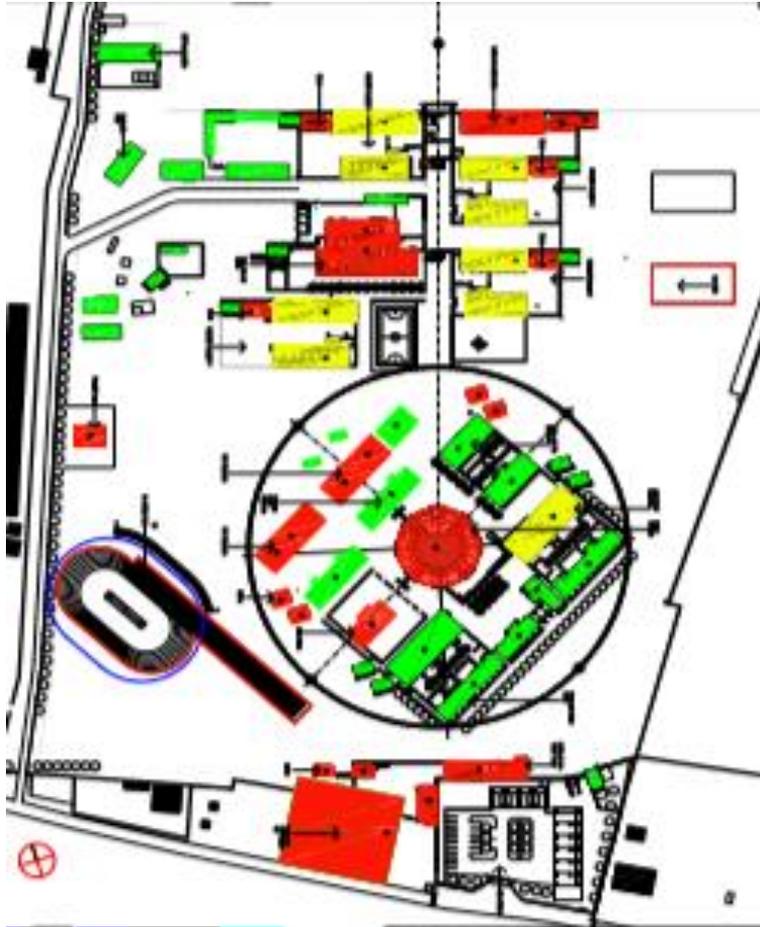
1. Build a Health Centre
2. Build a Visitor Centre complex
3. Build a Library/Resource facility

ARUP COLOURED MASTER PLAN

- Existing buildings
- Buildings undergoing repair
- New build

AERIAL PHOTOGRAPH OF SCHOOL

June 2019



Urgent seismic upgrade and mudslide repair programme

The most urgent repair & seismic work:

- ❑ 8 residential buildings + 4 new eco-shower buildings
- ❑ 2-storey Junior School North 6 classrooms



Total cost:	USD 1,158,000
Funds raised:	USD 787,000
Funds needed:	USD 371,000

New Classrooms and facilities for 16-18 year olds - Senior Secondary academic provision

- ❑ After the Year 10 Matriculation examinations, those students pursuing further academic study **currently have to leave** and go to other schools for their Years 11 and 12 of Senior Secondary study
- ❑ Druk Padma Karpo School (DPKS) now has a good track record of Year 10 academic success and is **ready to open its own Senior Secondary** courses
- ❑ The Senior Secondary facilities will include:
 - **x6 classrooms**
 - **Resource room, IT facilities, staff room**
 - **Set of latrines, electrical and water infrastructure**

Total cost:	USD 508,000
Funds raised:	USD 0
Funds needed:	USD 508,000

Seismic upgrade work and essential repair, new offices, Principal's house and latrines

- ❑ The urgent programme already underway covers the higher-risk buildings.
- ❑ Seismic upgrade and repair to other **classrooms, dining hall & kitchen and other buildings** will need to be done simultaneously with new building work on the school campus.
- ❑ With school expansion and additional senior management, additional **offices**, and **other facilities** are required.

Offices, house, latrines:

USD 244,000

Funds raised: USD 0

Funds needed: USD 244,000

Total cost Essential Repairs:

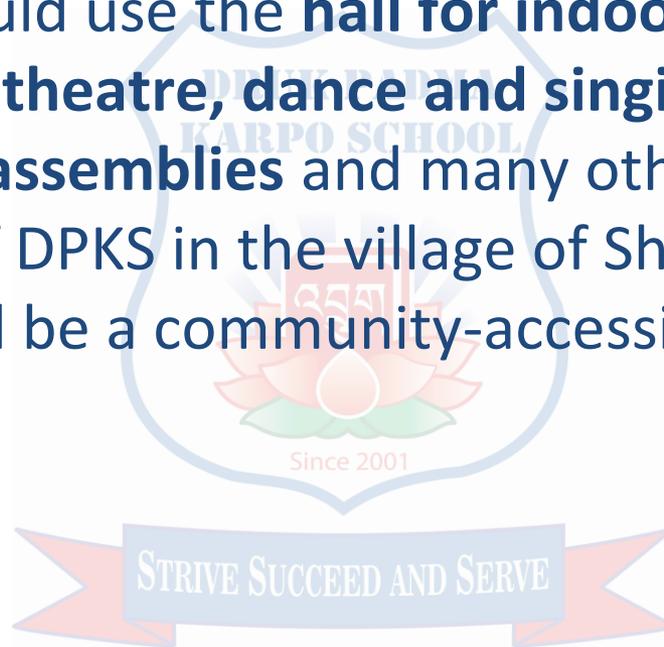
USD 2,220,000

Funds raised: USD 0

Funds needed: USD 2,220,000

Multi-purpose/Community Hall

- ❑ The school would use the **hall for indoor sports, examinations, theatre, dance and singing performances, whole-school assemblies** and many other activities.
- ❑ The location of DPKS in the village of Shey means that a large hall could be a community-accessible facility too.



Total cost:	USD 2,083,000
Funds raised:	USD 0
Funds needed:	USD 2,083,000

The “Dragon Garden” landscape & gardens

- ❑ In 2012, the **Dragon Garden** programme was initiated to **transform the mudslide devastation** on the school campus into an **inspiring ‘green’ learning environment** and illustrate the potential and importance of horticulture within a high altitude desert climate.



The “Dragon Garden” landscape & gardens

- ❑ A plant nursery, first phase of a drip irrigation system, fruit orchards, slate-paved paths, planting of other trees, flowers and shrubs have been achieved and are managed by a small gardening team.
- ❑ Additionally, drip-irrigation extension, residential gardens, themed gardens, propagation of plants, sports areas and extension of the slate pathways are needed.



Total cost:	USD 133,000
Funds raised:	USD 0
Funds needed:	USD 133,000

Visitor Centre Complex

- ❑ The campus has a tiny visitor centre that was built before Ladakh became a popular tourist destination for Indian tourists.
- ❑ A new visitor centre complex would have **exhibition areas, space for visitors to browse, the shop and a café**
- ❑ Selling merchandise and taking donations provides a useful revenue stream



Total cost: USD 365,000
Funds raised: USD 0
Funds needed: USD 365,000

Health Centre

- ❑ To improve the health of students and staff, this will offer a full range of primary and preventative health care, and an opportunity to learn about healthy living.
- ❑ A resident nurse will provide **primary healthcare**, whilst visiting doctors, dentists and healthcare specialists will offer **preventative medical screening, curative treatment and support health education.**
- ❑ Facilities to include: **a consultation room, secure pharmacy, nurse's office and living quarters**, isolation bedrooms and wash facilities for boys and girls, a kitchenette and dedicated latrines.

Total cost:	USD 333,000
Funds raised:	USD 0
Funds needed:	USD 333,000

Library/Resource facility

- The school's existing library/resource space is quite small. A new library building would enable a **mixture of traditional and modern library/resource methods**, suitable for a school of this size.



Total cost:	USD 1,115,000
Funds raised:	USD 0
Funds needed:	USD 1,115,000

Projected cash-flow in USD from 2020 to 2032, to complete construction work in 2032

2020	2021	2022	2023	2024	2025
324,000	281,000	438,000	505,000	1,111,000	1,229,000

2026	2027	2028	2029	2030	2031
954,000	427,000	422,000	393,000	359,000	558,000

2032
571,000

(exchange USD 1:65 INR)

Magnitude of cost estimate

- ❑ Arup have prepared the Magnitude of Cost Estimate (MCE) to provide a high level estimate of likely total cost for each building within the current Masterplan for Druk Padma Karpo School campus based upon a Masterplan and m² (metre square) estimates.
- ❑ The purpose of the MCE is to help **establish affordability and a realistic cost limit** for the project.
- ❑ This is an initial MCE and depending on a more defined final project brief and scope, Arup estimate that the **final cost of the agreed works may vary by - 25% to +25%**.
- ❑ Costs quoted exclude inflation.
- ❑ Cost for the multi-purpose/community hall excludes land purchase and total design fees.
- ❑ Arup's full set of assumptions and exclusions are available.

Drukpa Trust – Project Team, UK



Di Cook: Treasurer & Trustee



Wendy Cornwell: Trustee



Rachel Glynn: Project Manager & DT Secretary



Jonathan Rose: Chair of Trustee Board



Annie Smith: Trustee

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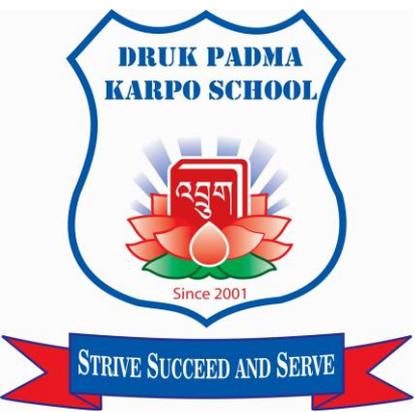
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Protect a Culture

Build a Future

Druk Padma Karpo School

Formerly Druk White Lotus School

Thank you!
for your interest
in our education and our futures

