BUILD BACK SAFER?
NOT ONLY A TECHNICAL MATTER.
INSIGHTS FROM OWNER-DRIVEN RECONSTRUCTION IN NEPAL

MARTINA MANNA
EXPLORE KEY FACTORS AFFECTING
OWNER-DRIVEN POST-DISASTER RECONSTRUCTION
IN NEPAL

CONTRIBUTE TO A BETTER UNDERSTANDING OF HOW TO
OPERATIONALIZE THE CONCEPT
OF BUILD BACK SAFER
THE MALADAPTATION OF THE BUILT ENVIRONMENT IS DIRECTLY CORRELATED TO THE PERCEPTION OF SAFETY AND INTERPRETATION OF RISK
HYPOTHESIS

The **maladaptation of the built environment** is directly correlated to the perception of safety and interpretation of risk.

- **Social factors**
- **Physical environment**
METHODOLOGY

FIELD RESEARCH
OBSERVATION
STRUCTURED CHECK-LIST
OBSERVATION
STRUCTURED CHECK-LIST

SEMI-STRUCTURED INTERVIEWS
PHASE 1.
UNDERSTANDING LOCAL BEHAVIOURS AND POTENTIAL MALADAPTATION

PHASE 2.
EXTENSIVE FIELD RESEARCH

7 MONTHS
72 Temporary Houses

10 Stone and Mud

12 Brick Masonry

6 Reinforced Concrete
CASE STUDY

NEPAL
WHERE?

Nuwakot District
WHERE?

1 OF THE 14 TARGETED DISTRICTS
WHY?

1100 - 1500m

REPRESENTATIVE OF OTHER AREAS IN THE COUNTRY
2 YEARS AFTER
72% ARE STILL LIVING IN TEMPORARY HOUSES AND DAMAGED BUILDINGS
DELYAING RECONSTRUCTION
FINANCIAL ISSUES AND PERCEPTIONS

According to overall respondents:

- Money: 43%
- Time/other priorities: 12%
- Lack of manpower: 17%
- Other: 5%
- Earth shake: 23%

Source:

- Stone and mud: Remittance 40%, Loan 30%, Saving 30%
- Brick masonry: Remittance 42%, Loan 50%, Saving 8%
- Reinforced concrete: Remittance 17%, Loan 33%, Saving 50%

Graphs elaborated by the author.
“IF THE **PRICE** IS SO HIGH AND I USE NAILS TO SECURE IT, THEN WHEN I BUILD A PERMANENT HOME IT WILL BE DAMAGED, IT IS BEST TO PUT ROCKS” *(INTERVIEWS, DECEMBER 2017)*
“IT IS NOT A PROBLEM TO HAVE ROCKS, THE NEXT STRONG EARTHQUAKE WON’T HAPPEN ANY TIME SOON, MAYBE 80 YEARS”

(INTEVIEWS JANUARY 2017)
“WHEN THE GROUND IS SETTLED WE WILL BUILD A PERMANENT HOME, NOW IT’S NOT WORTH IT”  (INTERVIEWS, APRIL 2017)
“I AM AFRAID OF GOING ON THE SECOND FLOOR, IT CAN FALL AT ANY TIME, I AM SAFE DOWN HERE”  (INTERVIEWS, DECEMBER 2016)
THE HOUSE IS SAFE ENOUGH FOR COOKING AND STORING GRAINS, BUT NOT FOR SLEEPING” (INTERVIEWS, DECEMBER 2016)
“WE SLEEP IN A TEMPORARY HOUSE CLOSE TO OUR OLD ONE, IT IS CLOSE ENOUGH TO OUR BUILDING, FOR US TO BE SAFE AND FOR OUR THINGS NOT TO GET STOLEN” (INTERVIEWS, AUGUST 2016)
"I kept the damaged floor and I put 5cm protective mud layer, this makes it very strong, rocks will not hurt us if another earthquake happens" (Interviews, March 2017)
SPATIAL FRAMING OF NEW CONSTRUCTION

“REINFORCED CONCRETE IS SO STRONG, NOTHING WILL DAMAGE IT”  
(INTerviews, April 2017)
STONE AND MUD

- 80% of respondents built away from cliff
- 90% of respondents built away from damaged building
- 60% of respondents have an escape route

REINFORCED CONCRETE

- 50% of respondents built away from cliff
- 50% of respondents built away from damaged building
- 50% of respondents have an escape route

LAND-USE - RISK AND SAFETY INTERPRETATION
STRUCTURAL RATING AND LAND USE RATING, PER HOUSE, WITH TECHNICAL ADVICE INDICATOR

- Got Technical Advice
- Land Use Rating
- Structural Rating

Materials:
- Brick
- Masonry
- Stone
- Mud
- Reinforced Concrete
No strict correlation is found between receiving technical advice and build back safer.
BUILD BACK SAFER IS MORE THAN JUST A TECHNICAL MATTER
Social Factors

Perception of Hazard Risk

Decision Making Processes Based on Prioritization

False Behaviour of Safety

Built Environment
SOCIAL FACTORS

PERCEPTION OF HAZARD RISK

DECISION MAKING PROCESSES BASED ON PRIORITIZATION

FALSE BEHAVIOUR OF SAFETY

SAFETY

TIME AND INVESTMENT

LOSS OF FAITH IN TRADITIONAL MATERIAL

BUILT ENVIRONMENT
THE MALADAPTATION OF THE BUILT ENVIRONMENT IS DIRECTLY CORRELATED TO THE PERCEPTION OF SAFETY AND INTERPRETATION OF RISK
THANK YOU