

A black and white photograph of two young boys in school uniforms. The boy on the left is smiling and looking towards the camera. The boy on the right is making a peace sign with his hand. They are standing in front of a rough, textured wall. The word 'tilt' is written in a large, white, handwritten-style font across the middle of the image.

# tilt

BE THE CHANGE

A CREATIVITY & SOCIAL IMPACT PLATFORM FOR UNDERDEVELOPED COMMUNITIES



## PROJECT INTRODUCTION

HYPOTHESIS  
BACKGROUND  
TIMELINE  
QUANTIFICATION

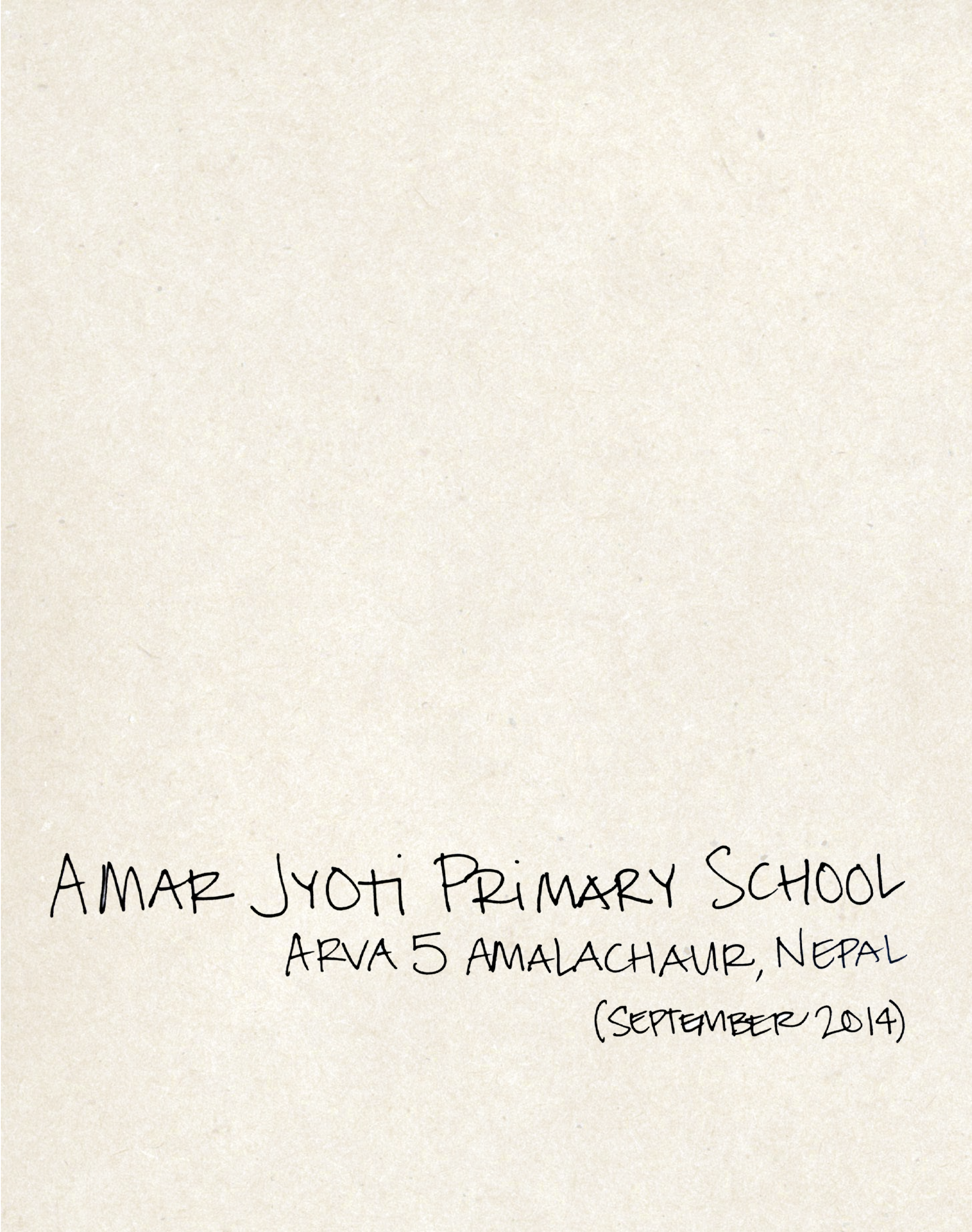


A  
BEAUTIFUL  
CONTRAST

HYPOTHESIS  
INITIAL INTENT

STUDYING EARLY-CHILDHOOD DEVELOPMENT AS IT CORRELATES TO PLAY, I'M  
APPLYING THIS RESEARCH TO THE DESIGN AND CONSTRUCTION OF A PLAYGROUND  
FOR AN UNDERPRIVILEGED PRIMARY SCHOOL IN POKHARA, NEPAL.





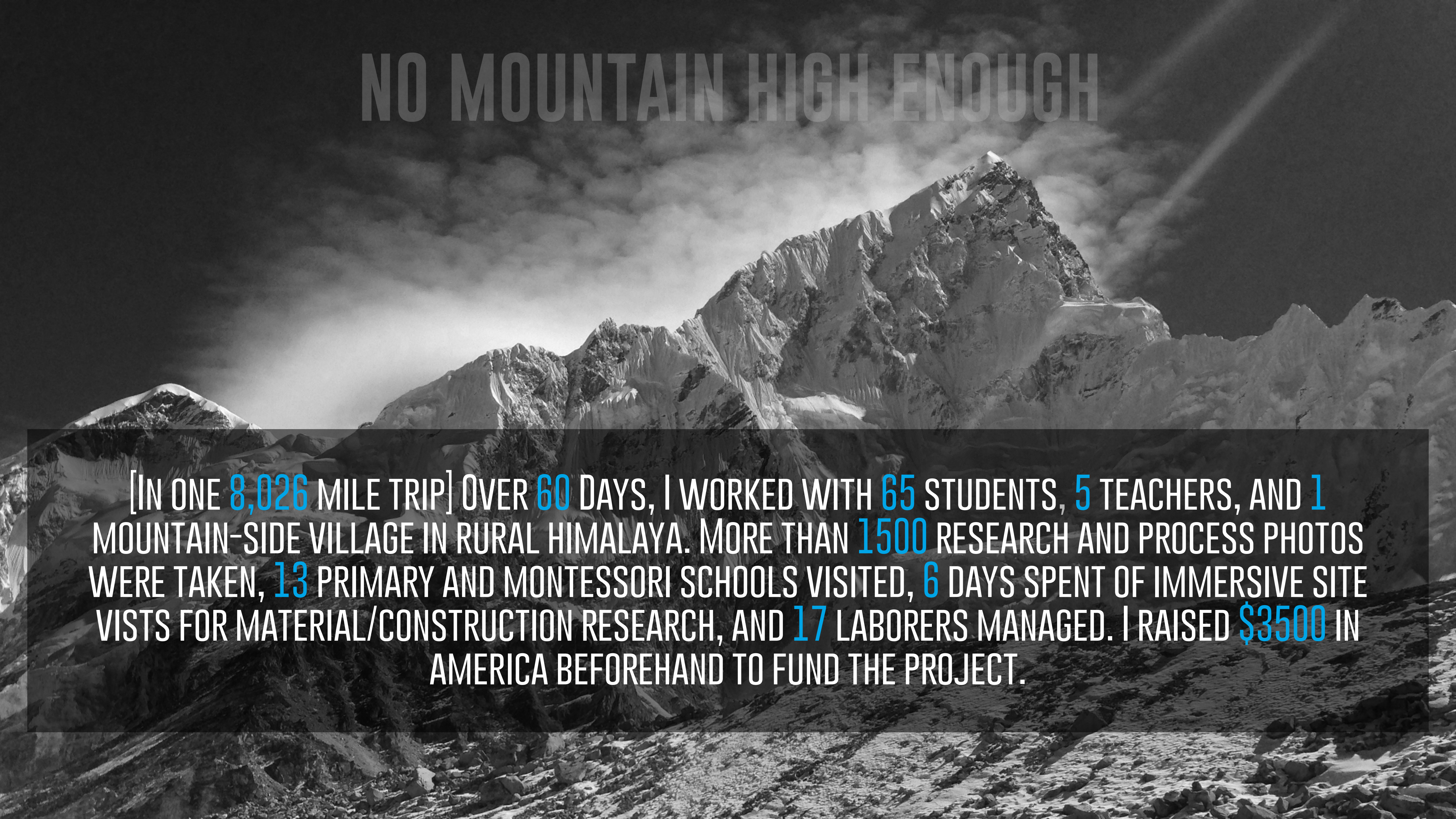
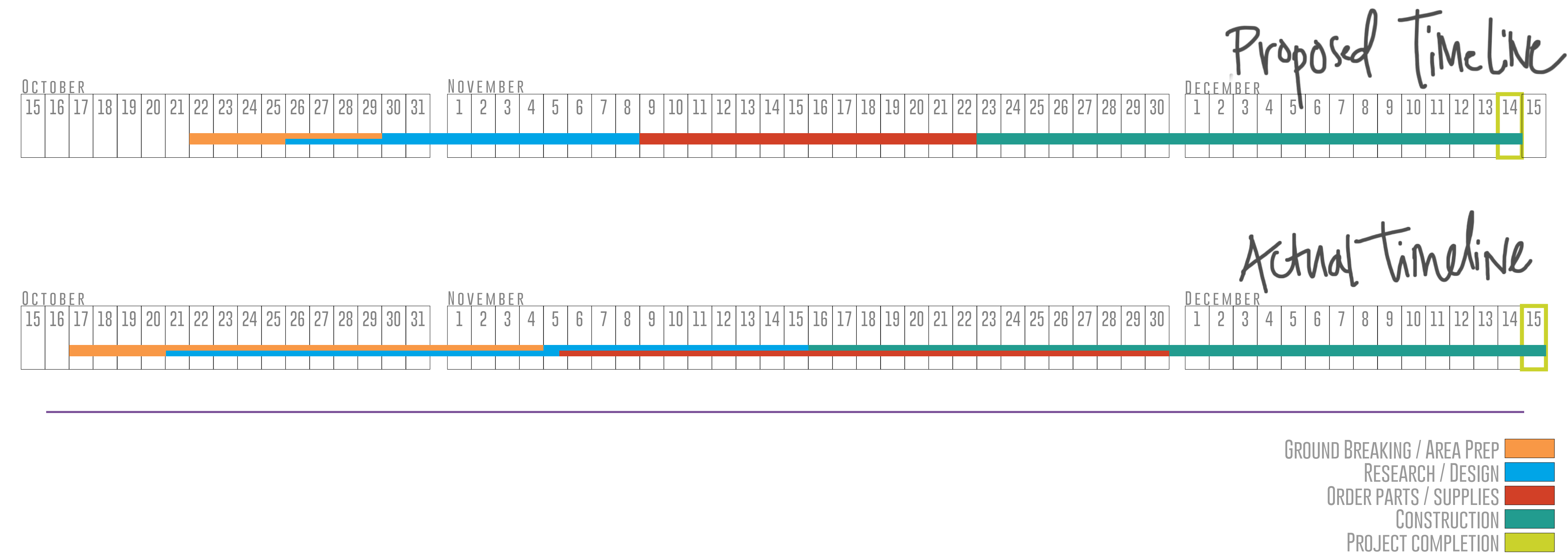
AMAR JYOTI PRIMARY SCHOOL  
ARVA 5 AMALACHAUR, NEPAL  
(SEPTEMBER 2014)



OCTOBER22

**WHAT'S IT MATTER, ANYWAY?**  
THE TAKEAWAY: PROVIDE A SAFE ENVIRONMENT DESIGNED TO FOSTER & ENHANCE THE OPPORTUNITIES FOR A CHILD TO PLAY ALONE, WITH A CAREGIVER, OR OTHER CHILDREN. GIVEN THE IMPORTANCE OF PLAY IN THE DEVELOPMENT OF A CHILD, ANY SPACE WHICH GIVES A CHILD FREE REIGN TO DO JUST THAT SHOULD BE SEEN AS CRUCIAL.





# NO MOUNTAIN HIGH ENOUGH

[IN ONE 8,026 MILE TRIP] OVER 60 DAYS, I WORKED WITH 65 STUDENTS, 5 TEACHERS, AND 1 MOUNTAIN-SIDE VILLAGE IN RURAL HIMALAYA. MORE THAN 1500 RESEARCH AND PROCESS PHOTOS WERE TAKEN, 13 PRIMARY AND MONTESSORI SCHOOLS VISITED, 6 DAYS SPENT OF IMMERSIVE SITE VISTS FOR MATERIAL/CONSTRUCTION RESEARCH, AND 17 LABORERS MANAGED. I RAISED \$3500 IN AMERICA BEFOREHAND TO FUND THE PROJECT.



USER RESEARCH

## DESIGN ANALYSIS 1.0

ARVA 5, POKHARA NEPAL  
USERS  
ACTIVITIES & INTERACTIONS  
GLOBAL PLAY VARIABILITY  
CULTURAL SENSITIVITY





a closer look

# NEPAL



population

30 Million

83% Hindu  
125 ethnic groups  
123 languages

34%

under age 14



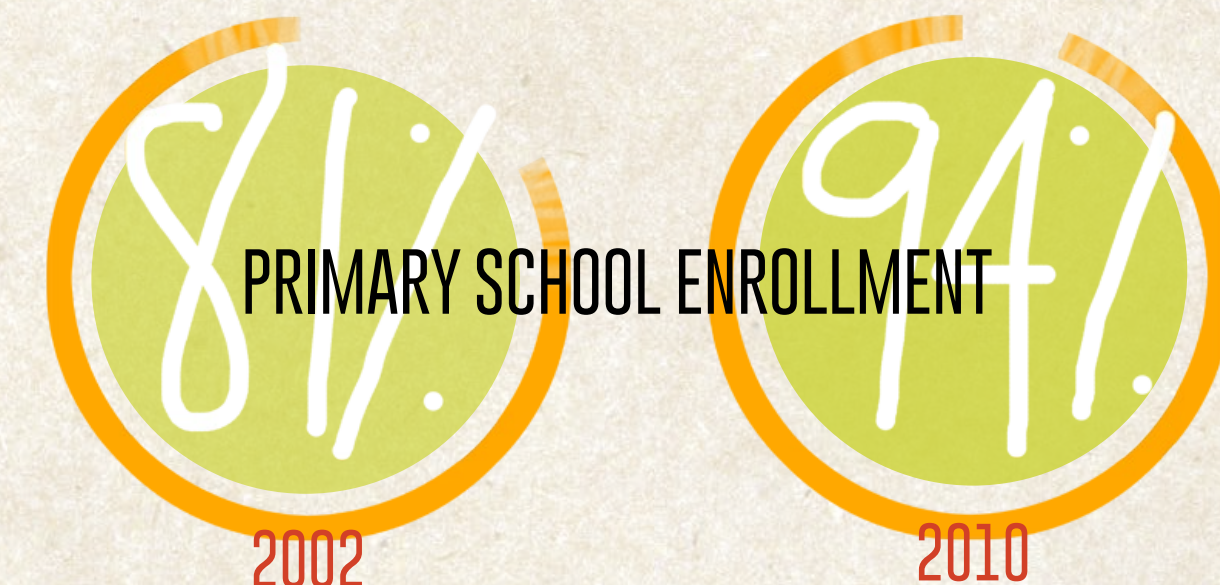
THERE ARE

2.6 MILLION CHILD LABORERS IN NEPAL

WOMEN

MEN

LITERACY RATES AMONG ADULTS IS 35% FOR WOMEN & 64% FOR MEN.



1 IN 3



CHILDREN WORK INSTEAD OF ATTENDING SCHOOL

**STUDENTS**

+PLAYSPACE AT SCHOOL  
+CREATIVE PLAY ENVIRONMENT

**TEACHERS**

+DYNAMIC LEARNING OPPORTUNITY

**PARENTS**

+SOURCE OF CHILDCARE

**COMMUNITY**

+SAFE/CLEAN SPACE FOR PLAY



USERS





**“CULTURES HAVE DIFFERENT ATTITUDES & VALUES ABOUT PLAY.**

**THE PROMINENCE GIVEN TO THE DEVELOPMENT OF SOCIO-DRAMATIC  
PLAY IN WESTERN CULTURE IS NOT UNIVERSAL.”**



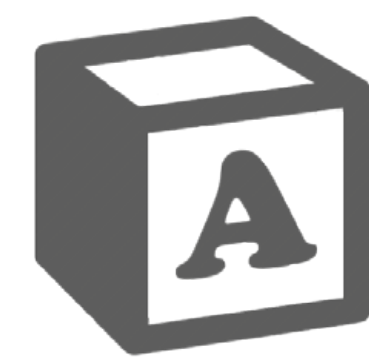
WHILE WESTERN CULTURES HAVE DEVELOPED TENDENCIES IN  
ORGANIZED & SUPERVISED PLAY, NEPALESE [VILLAGE]  
CHILDREN ENGAGE IN ‘ROUGH-AND-TUMBLE’ PLAY...AND ITS’  
VALUE IS NOT RECOGNIZED.



How can I be

# CULTURALLY SENSITIVE

in my research approach?



HOW IS PLAY  
VALUED IN NEPAL?



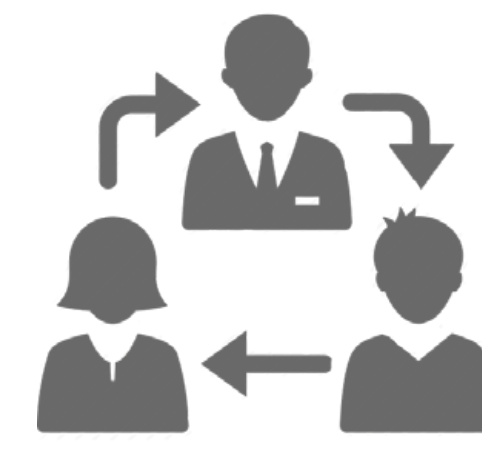
HOW AM I PERCEIVED CULTURALLY  
AS A FEMALE?  
AS A DESIGNER?  
AS A FOREIGNER?



HOW CAN I UTILIZE  
THE STRENGTHS OF  
MY LABORERS?



WHAT ARE MY  
SURROUNDINGS?



WHO AM I WORKING  
WITH AND FOR?

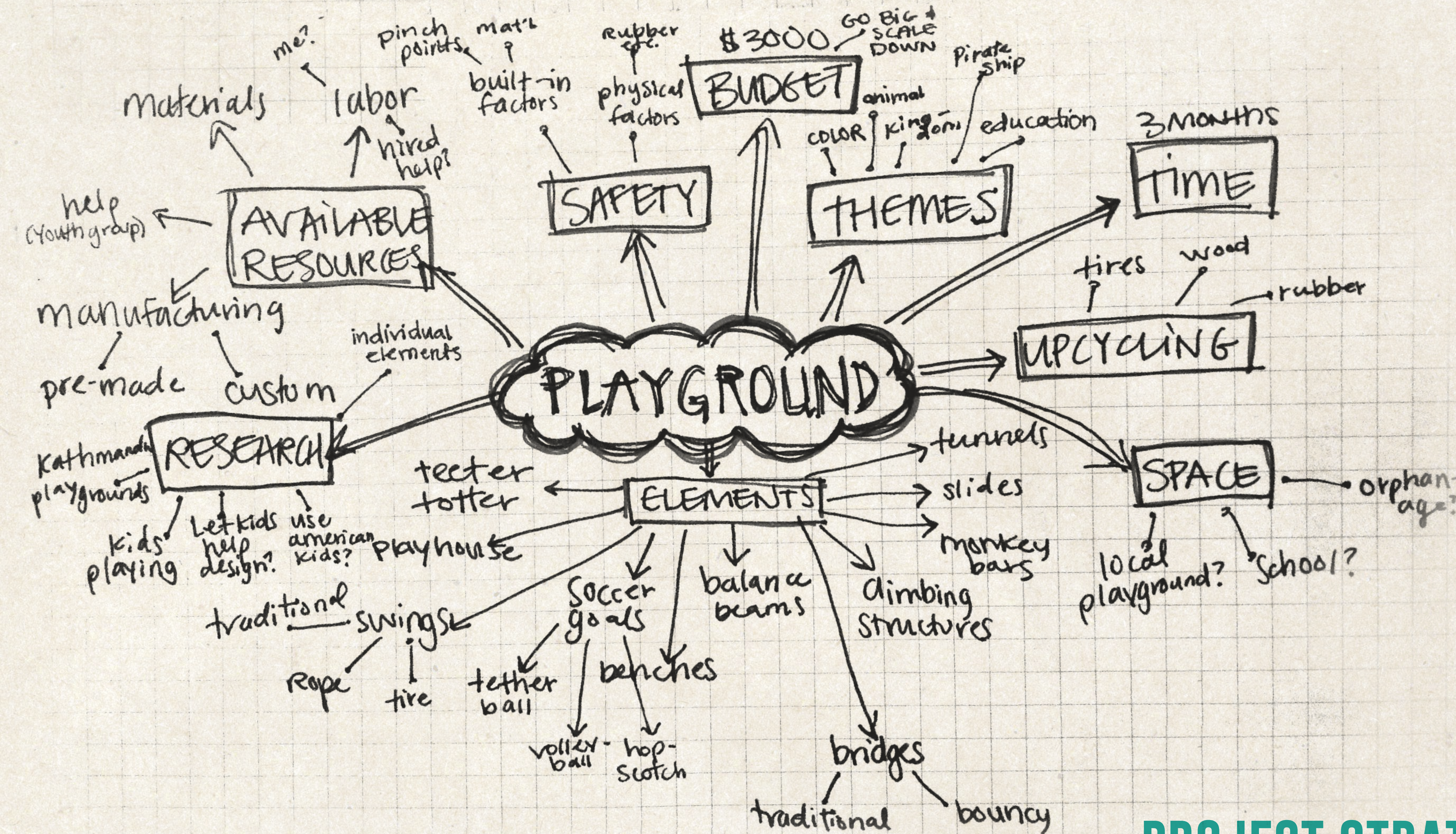
IDENTIFYING THE (CULTURAL) CHALLENGES

## DESIGN SYNTHESIS

PROJECT STRATEGY  
DESIGN PRINCIPLES







## PROJECT STRATEGY

“A CREATIVE PLAYGROUND IS ONLY HALF A CREATIVE SPACE;  
IT’S ALSO A CREATIVE ATTITUDE”

—JAY BECKWITH, 1973

GOOD DESIGN WILL BE ENVIRONMENTALLY FRIENDLY  
GOOD DESIGN WILL USE FAIR-WAGE LOCAL LABOR  
GOOD DESIGN WILL USE LOCAL, NATURAL, & RECYCLED MATERIALS

GOOD DESIGN WILL BENEFIT THE ENTIRE COMMUNITY  
GOOD DESIGN WILL TEACH CREATIVITY  
GOOD DESIGN WILL TEACH THE VALUE OF PLAY

## DESIGN PRINCIPLES





# DESIGN 1

GLOBAL BENCHMARKING  
INITIAL IDEATION



National  
Needs/Materials/Design

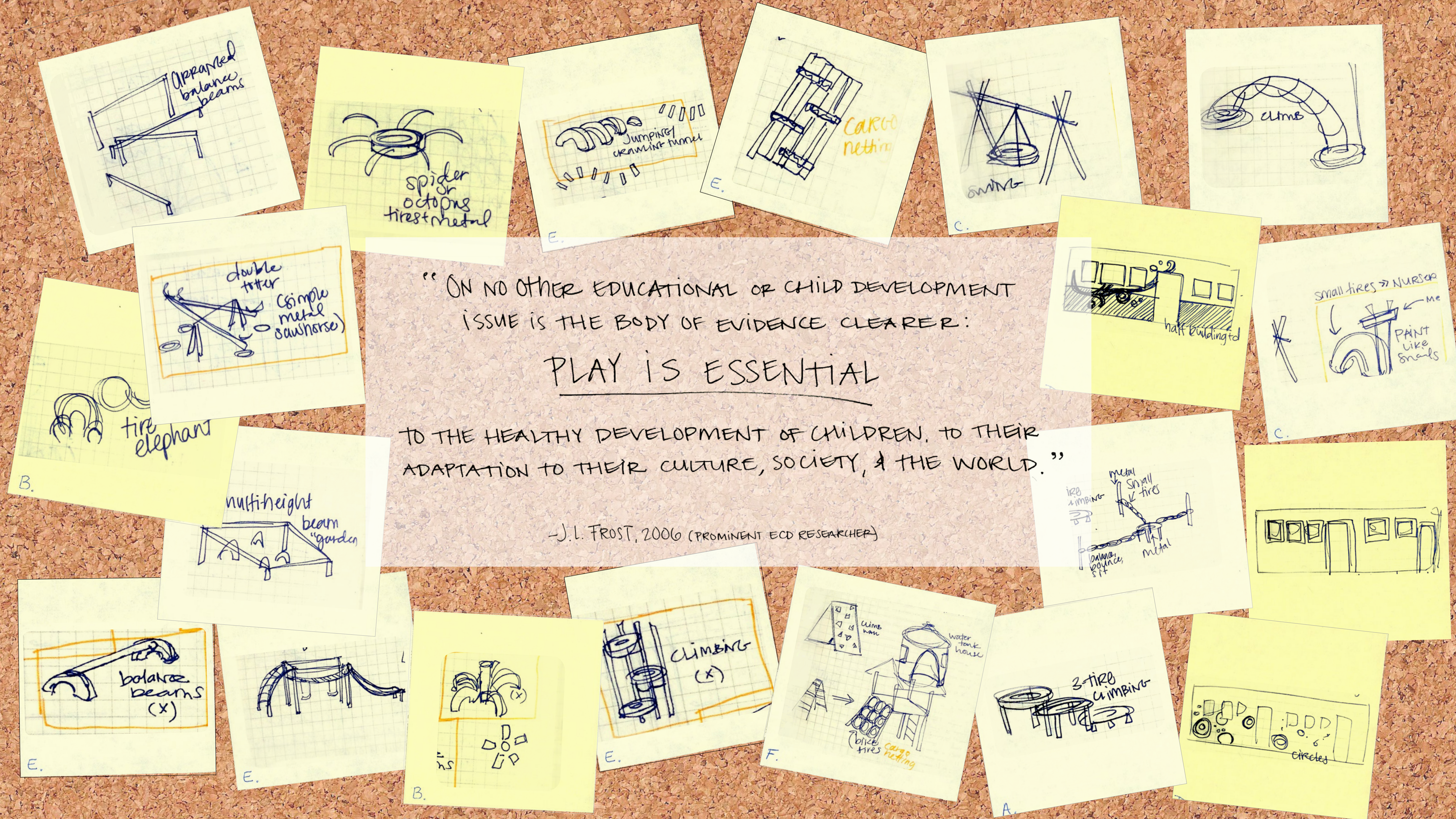
v.s.

International  
Needs/Materials/Design

SOURCES: PLAYGROUNDIDEAS, KABOOM, LEARNING BY NATURE, KUKUK, DREAMWEAVERS, INDULGY, MILIEU KONTAKT, GREENSCHOOL, SONEVA KIRI

BENCHMARKING  
GLOBAL PLAY-MAKERS





## EARLY CHILDHOOD DEVELOPMENT DESIGN ANALYSIS 2.0

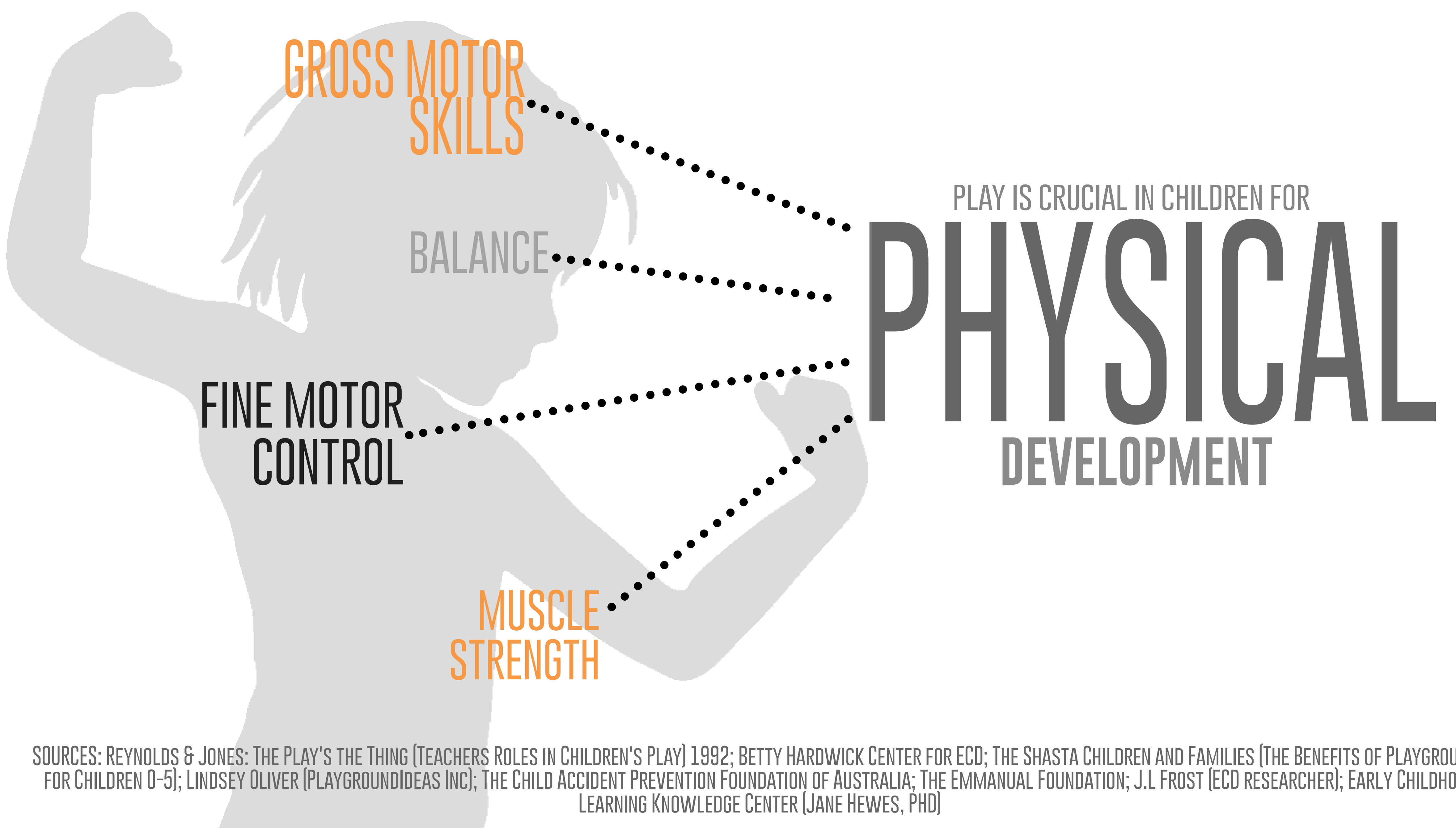
THE VALUE OF PLAY  
DEVELOPMENTAL IMPLICATIONS  
NEEDS ASSESSMENT



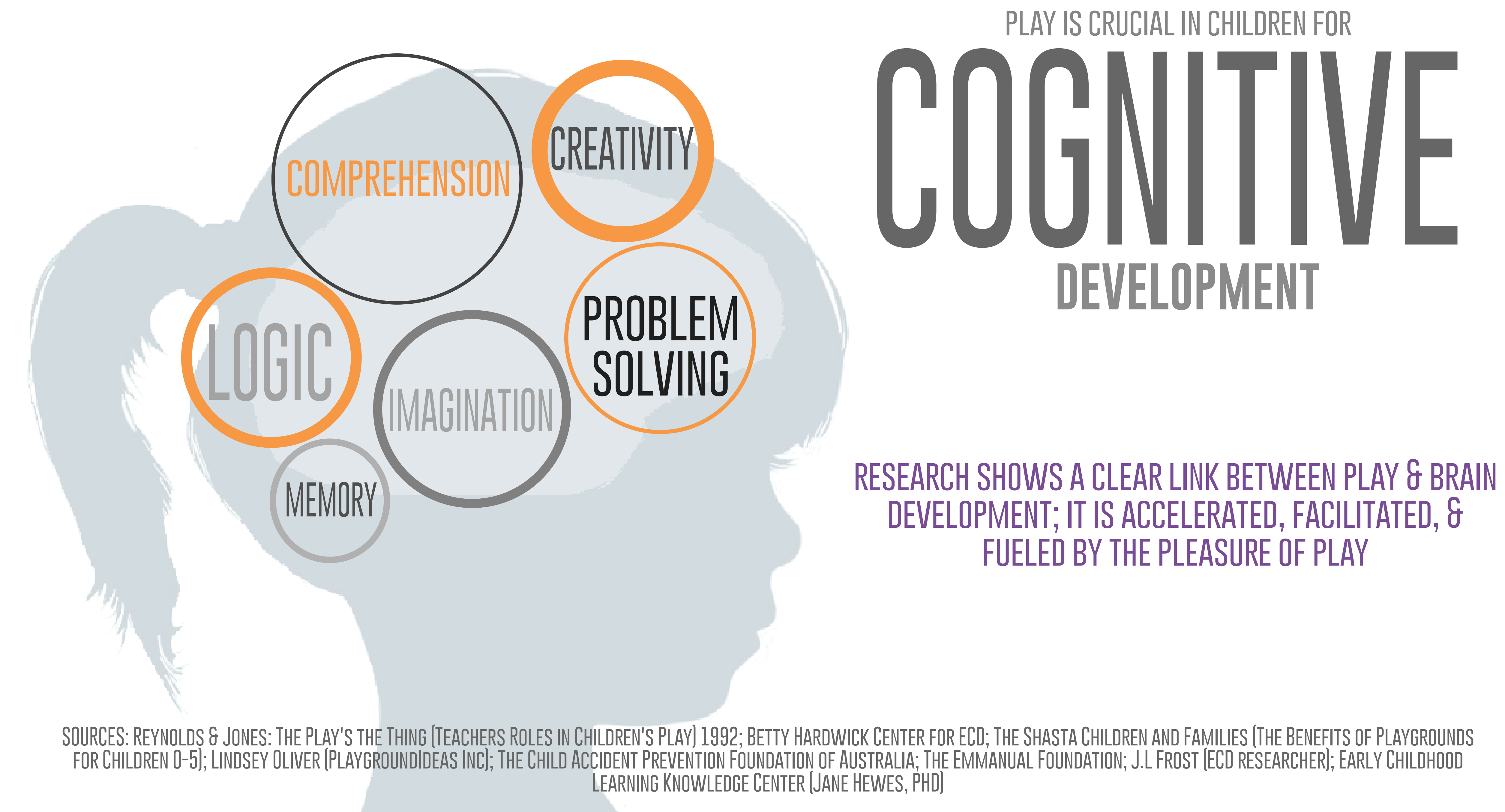








SOURCES: REYNOLDS & JONES: THE PLAY'S THE THING (TEACHERS ROLES IN CHILDREN'S PLAY) 1992; BETTY HARDWICK CENTER FOR ECD; THE SHASTA CHILDREN AND FAMILIES (THE BENEFITS OF PLAYGROUNDS FOR CHILDREN 0-5); LINDSEY OLIVER (PLAYGROUNDIDEAS INC); THE CHILD ACCIDENT PREVENTION FOUNDATION OF AUSTRALIA; THE EMMANUAL FOUNDATION; J.L FROST (ECD RESEARCHER); EARLY CHILDHOOD LEARNING KNOWLEDGE CENTER (JANE HEWES, PHD)



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“PLAY IS ESPECIALLY IMPORTANT TO THE DEVELOPING WORLD BECAUSE SCHOOLS OFTEN HAVE FEW RESOURCES.”

—MARCUS VEERMAN  
[PLAYGROUND IDEAS]

RURAL NEPAL IS AN IMPOVERISHED WORLD. MANY SCHOOLS ARE IN POOR PHYSICAL CONDITION, MOST BEING

- OPEN TO THE ELEMENTS
- RUN-DOWN
- WITHOUT SUFFICIENT FURNITURE
- TYPICALLY LACKING RECREATIONAL PLAYSPACES

THE LONG TERM IMPACT IS CLEAR—CHILDREN SPEND THEIR DAYS IN THESE UNATTRACTIVE, UNCOMFORTABLE, AND FREQUENTLY UNSAFE SETTINGS, POOR ATTENDANCE IS COMMON, AND EDUCATION SUFFERS GREATLY.

SOURCE: GLOBALGIVING; BETTER SCHOOLS IN NEPAL PROJECT. EDUCATE THE CHILDREN INTERNATIONAL.



NEEDS ASSESSMENT

MATERIALS & ENVIRONMENT

## DESIGN ANALYSIS 3.0

MATERIALS  
SITE VISITS  
CONSTRUCTION TECHNIQUES  
SAFETY MEASURES & IMPLEMENTATIONS





NATURAL  
LOCAL  
RECYCLED **MATERIALS**



+BAMBOO



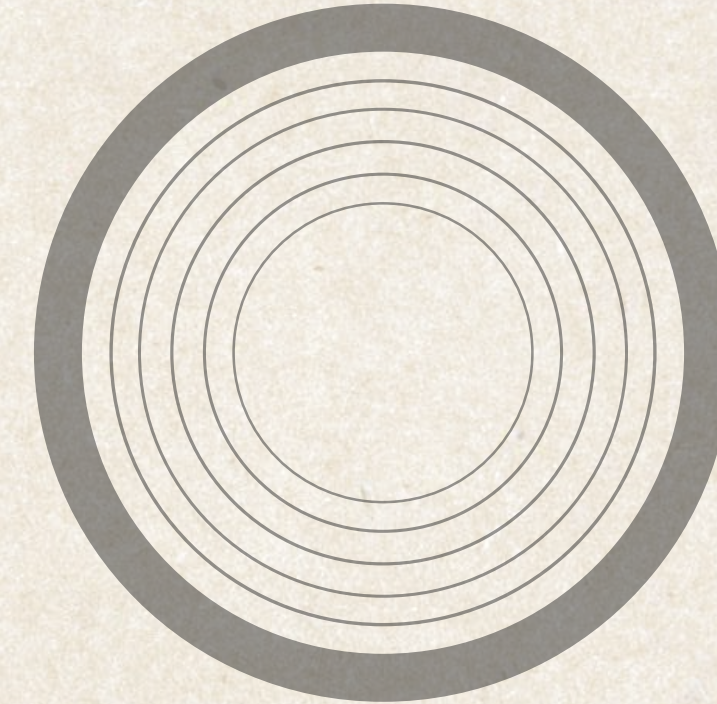
+TIRES



+METAL



+WATER TANKS



+SAL WOOD



LOCAL RESEARCH: PRIMARY/MONTESSORI SCHOOLS IN KATHMANDU & POKHARA.

THERE ARE VERY FEW PLAYGROUNDS. ONLY THE NICEST SCHOOLS HAVE THEM; THEY ONLY USE METAL OR PLASTIC. EVEN FEWER LOCAL PARKS/PUBLIC RECREATIONAL AREAS. PUBLIC SPACES ARE FIELDS.

**SITE VISITS**





# LAWS AND REGULATIONS VS BUILT-IN STRATEGIES

SAFETY BASED ON US STANDARDS SAFETY BASED ON USER BEHAVIORS (FEATURES BUILT INTO DESIGN)

## AMERICAN STANDARDS/REGULATIONS

HEIGHTS; OVER 18" MUST HAVE GUARD RAIL •

6' FALL ZONE AROUND EACH ELEMENT •

ENTRAPMENT; NO OPENINGS BETWEEN 3.5"-11" •

PINCH & CRUSH POINTS; MOVING PARTS (NO 'V' SHAPED AREAS) •

SURFACE; 12" SAND , PEA GRAVEL, ETC •

## SPECIAL ATTENTION TO CONSTRUCTION TECHNIQUES & MATERIAL USAGE

• TIRES (STEEL BELTED); FULLY INSPECTED

• SAL WOOD; CORNERS SANDED, SURFACES CHECKED FOR SPLINTERS

• HEIGHTS

• 6' FALL ZONE AROUND EACH ELEMENT

• ENTRAPMENT; NO OPENINGS BETWEEN 3.5"-11", NO 'V' SHAPED AREAS

• SURFACE; CLEARED OF ROCKS AND DEBRIS (EXTRA SURFACING IS 'UNNECESSARY')

• PROTRUDING BOLTS, # OF CONNECTION POINTS

• DRAIN HOLES TO AVOID MOSQUITO BREEDING AREAS

Public Playground Safety Checklist

1. Make sure surfaces around playground equipment have at least 12 inches of wood chips, mulch, sand, or pea gravel, or are mats made of safety-tested rubber or rubber-like materials.
2. Check that protective surfacing extends at least 6 feet in all directions from play equipment. For swings, be sure surfacing extends, in back and front, twice the height of the suspending bar.
3. Make sure play structures more than 30 inches high are spaced at least 9 feet apart.
4. Check for dangerous hardware, like open "S" hooks or protruding bolt ends.
5. Make sure spaces that could trap children, such as openings in guardrails or between ladder rungs, measure less than 3.5 inches or more than 9 inches.
6. Check for sharp points or edges in equipment.
7. Look out for tripping hazards, like exposed concrete footings, tree stumps, like platforms and ramps, have guardrails to prevent falls.
8. Make sure elevated surfaces, like platforms and ramps, have guardrails to prevent falls.
9. Check playgrounds regularly to see that equipment and surfacing are in good condition.
10. Carefully supervise children on playgrounds to make sure they're safe.

SOURCES: UNITED STATES CONSUMER PRODUCT SAFETY COMMISSION (PLAYGROUND SAFETY), "ENTYRELY FUN PLAYGROUNDS" (JAMES JOLLE)

SAFETY MEASURES & IMPLEMENTATIONS

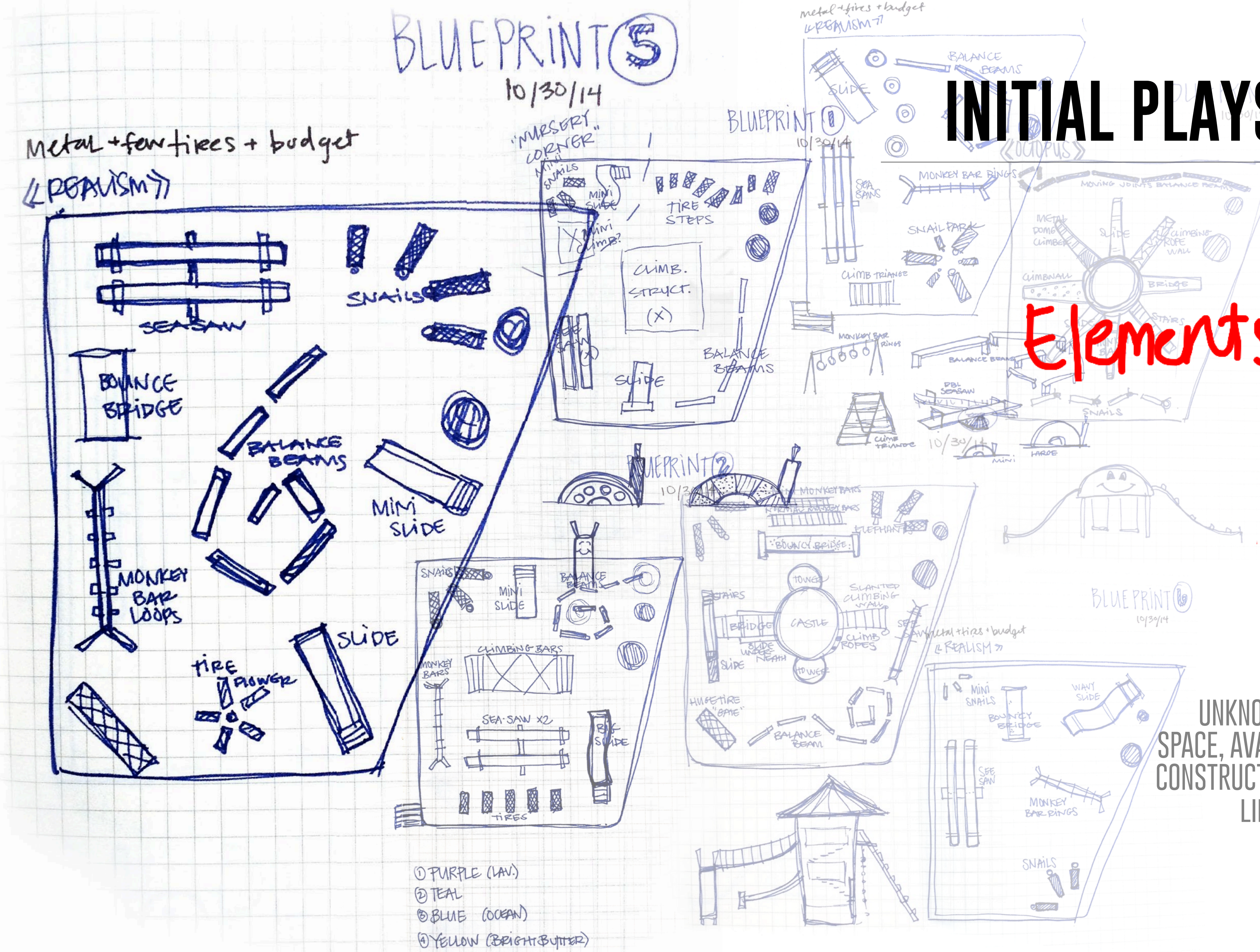
## CONSTRUCTION TECHNIQUES

## TRANSLATING SAFETY ACROSS THE GLOBE



## DESIGN 2

INITIAL PLAYScape IDEATION  
ELEMENT DESIGN  
FLOORPLAN + FLOW DESIGN



PHASE 1

## INITIAL PLAYScape IDEATION

CONSIDERATIONS

Elements to include ←  
Theme ←  
Layout ←

FINDINGS

UNKNOWN FACTORS: ACTUAL SIZE OF ALLOTTED SPACE, AVAILABILITY OF MATERIALS, & LABORERS' CONSTRUCTION KNOWLEDGE. DESIGNING WITHOUT LIMITATIONS AND KEEPING OPTIONS OPEN.



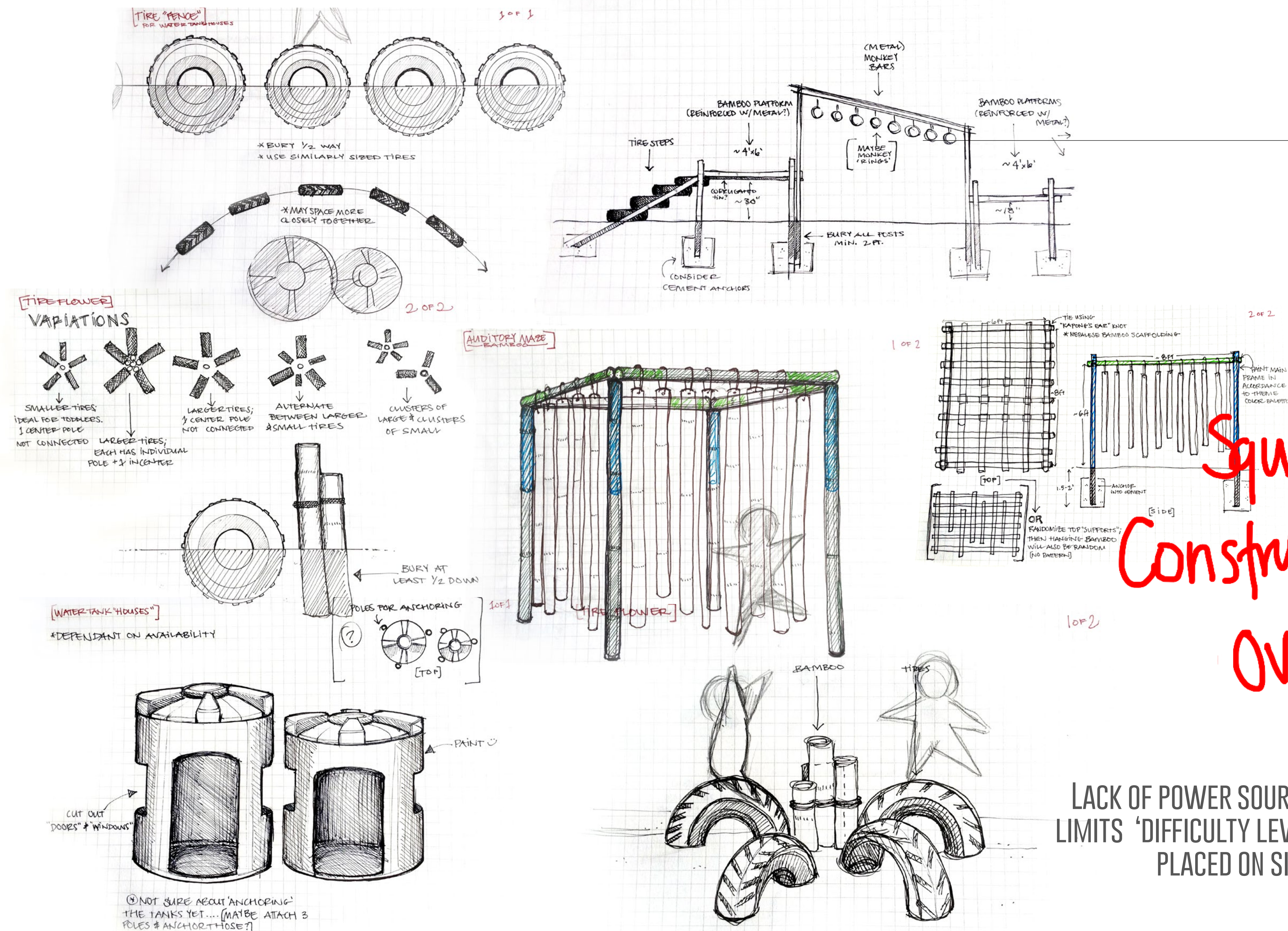
## PHASE 2

## CONSIDERATIONS

Materials -  
Cost -  
Square ft./Element -  
Construction Feasibility -  
Overall Synergy -

## FINDINGS

LACK OF POWER SOURCE AND BASIC CONSTRUCTION MATERIALS LIMITS 'DIFFICULTY LEVEL' OF ELEMENTS TO BE USED. EMPHASIS PLACED ON SIMPLICITY, WITHOUT LOSING UNIQUENESS.



## PHASE 3

## ITERATIONS FROM PHASE 2

## ELEMENT SYNERGY

ELEMENTS SELECTED FROM PHASE 2  
CHOSEN ON A BASIS OF OVERALL SYNERGY  
AS IT MESHERD WITH OVERALL FLOW.

## CONSIDERATIONS

# SPACE

## SAFETY IMPLEMENTATIONS

## ACTIVITY VARIATIONS

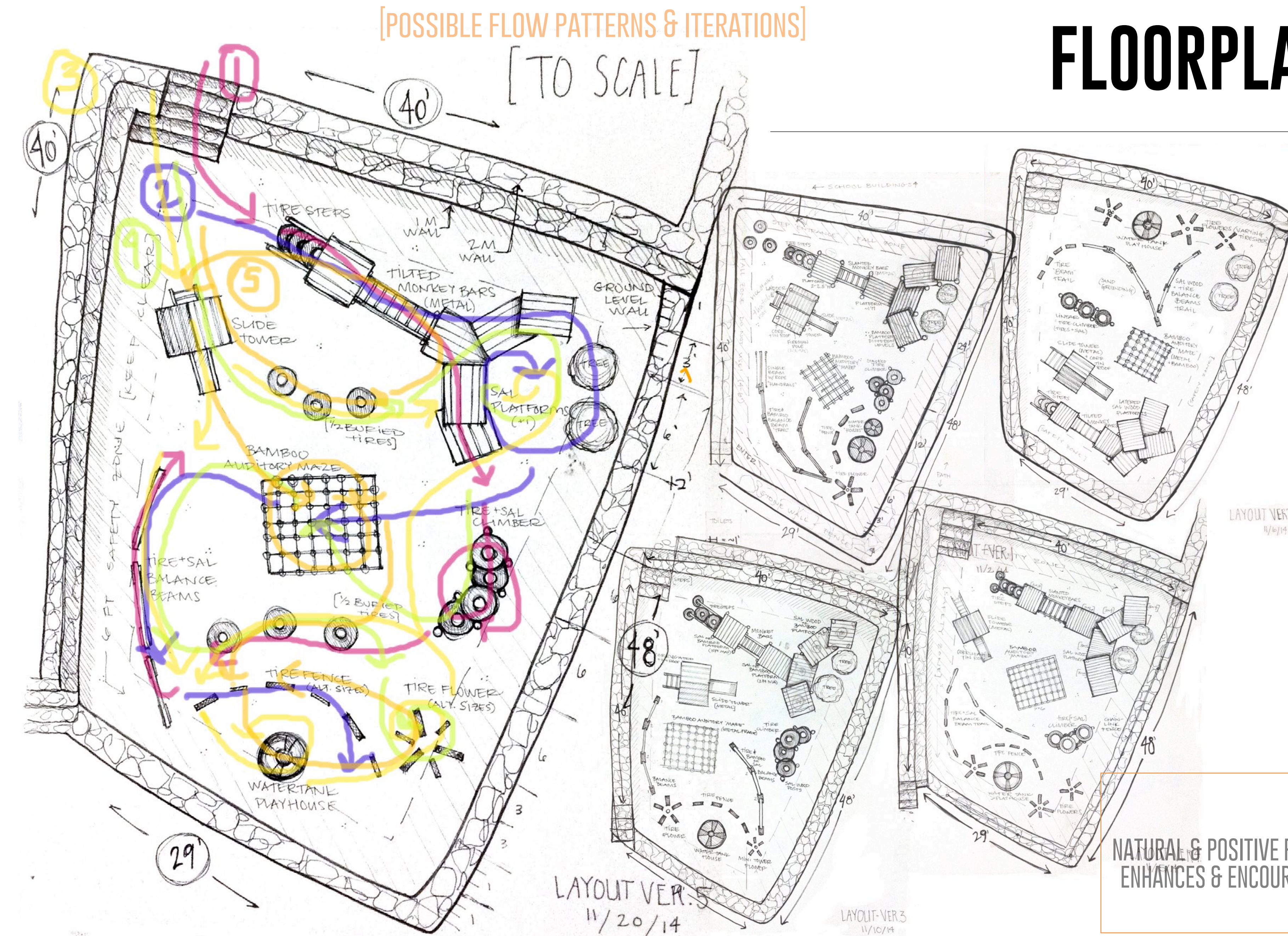
## TOTAL SQUARE FOOTAGE

## FINDINGS

6' FALL ZONE PERIMETER GREATLY REDUCES  
TOTAL USABLE SPACE. SMALL AREA MEANS  
FLOW DESIGN NEEDS TO BE PLANNED AND NOT  
SPORATIC IN ORDER TO MAXIMIZE NUMBER OF  
ELEMENTS.

# WHY FLOW?

NATURAL & POSITIVE FLOW TO PLAY BEHAVIORS: INCREASE OF MOVING OPTIONS  
ENHANCES & ENCOURAGES WIDER RANGE OF SKILLS. ALLOWS FOR PLAY TYPES  
[SOLO PLAY, 1-ON-1 PLAY, SMALL GROUP PLAY]





# DEVELOPMENT

FIELD DIARIES: CONSTRUCTION PROCESS



## CONSTRUCTION TIMELINE



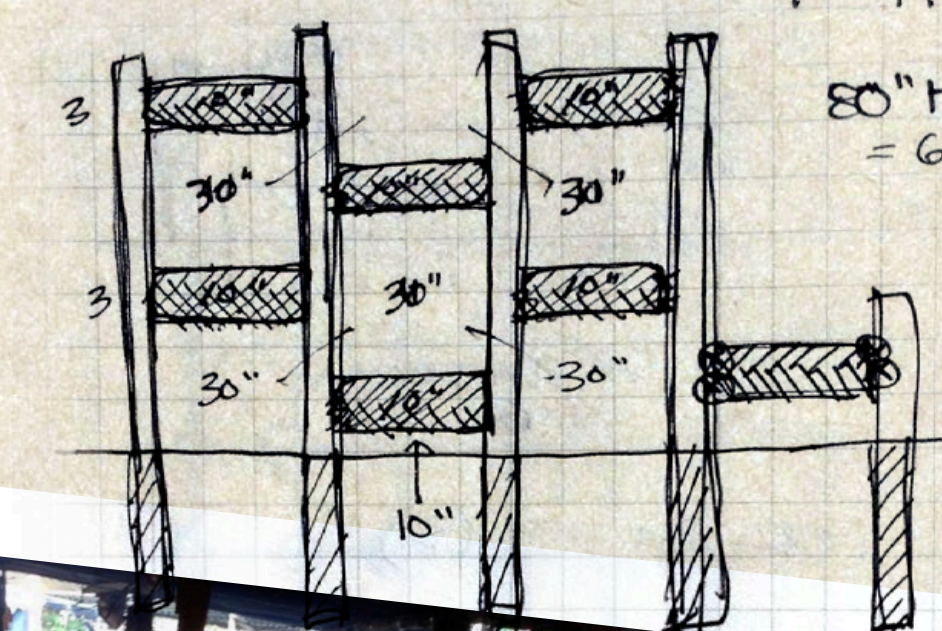
NOVEMBER  
DECEMBER

		N11	N12	N13	N14	N15
N16	N17	N18	N19	N20	N21	N22
N23	N24	N25	N26	----->		
D14	D15					

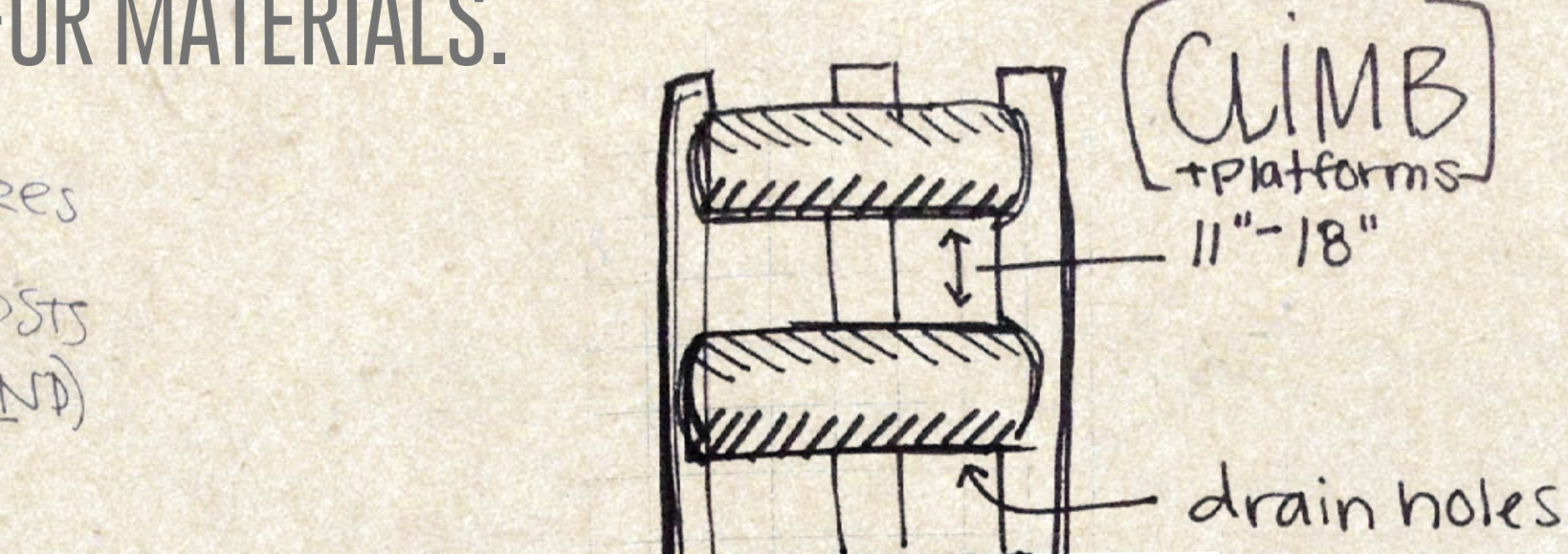


# N11 RESEARCH/DESIGN BULK COMPLETE. PLAN MATERIALS, MEETINGS WITH CARPENTER, HUNTING FOR MATERIALS.

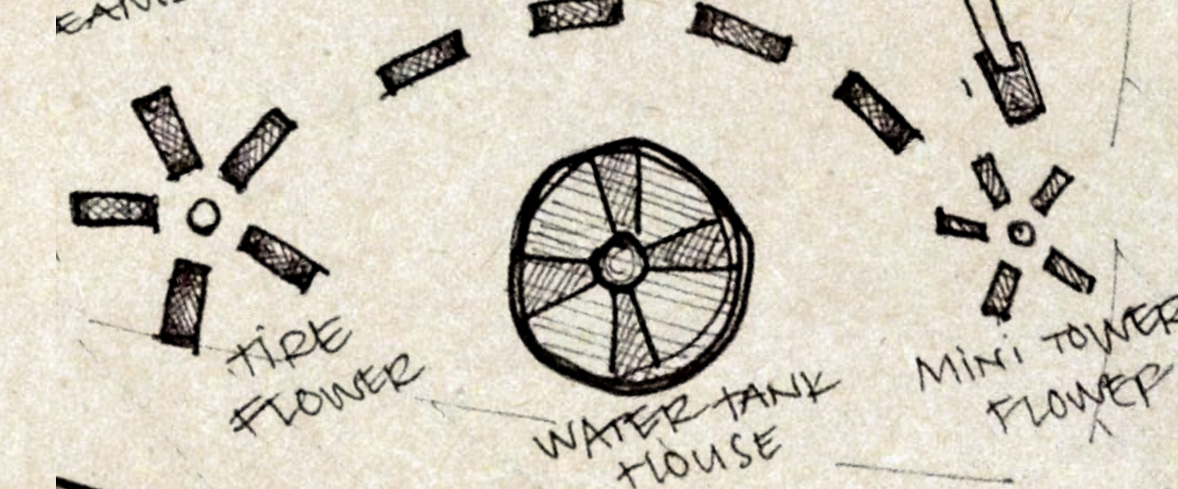
TIRE CLIMBER  
SAL WOOD  
9" x 10" THICK TIRES  
6" x 4" x 5" SAL POSTS  
7 FT H (ROUND)



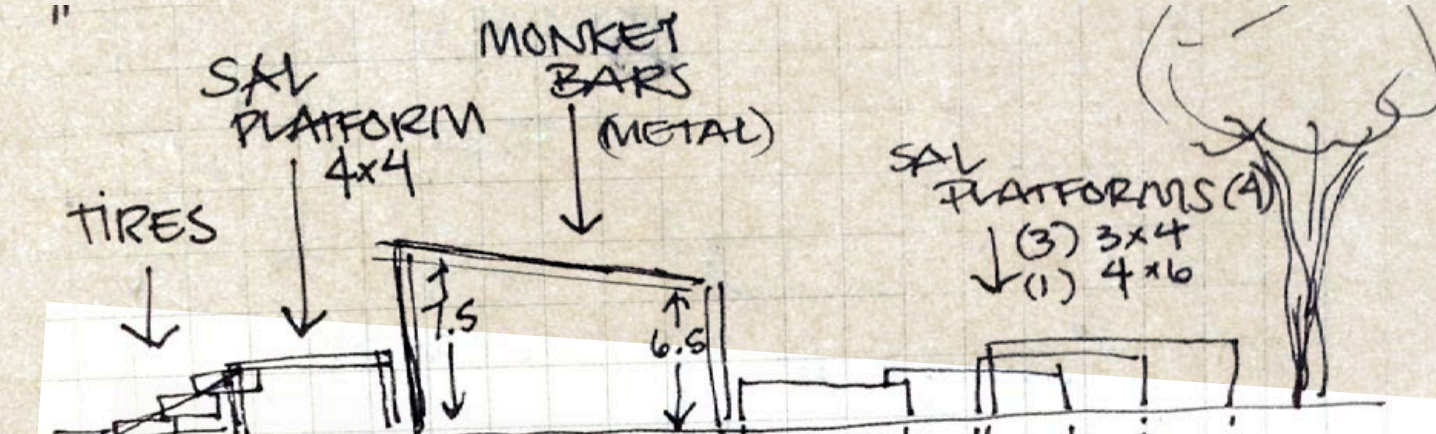
Carpenter  
(platforms, beams, climber post)



TIRES  
(balance beams, flowers, steps, tire climber)



Bamboo forest  
(Bamboo Auditory Maze)



Metalsmith  
(bamboo maze frame, monkey bars, slidetower)

“THE IMPERFECTIONS WERE INSPIRING”

NOTHING GOES TO PLAN; CONTINUOUS ITERATIONS

# N16 DAY 1 CONSTRUCTION. FINISH STONE WALL PERIMETER. TIRES, FENCING, WOOD, MONKEY BARS DELIVERED.



day 1 construction: 11/16/14

arrived in afternoon with remaining fence wire, frames for platforms and other wood posts. Ground is finally leveled & bamboo stalks are on site. Placed 2 full platforms & monkey bars, built frames for other platforms & placed those on site. Hope to anchor tomorrow.



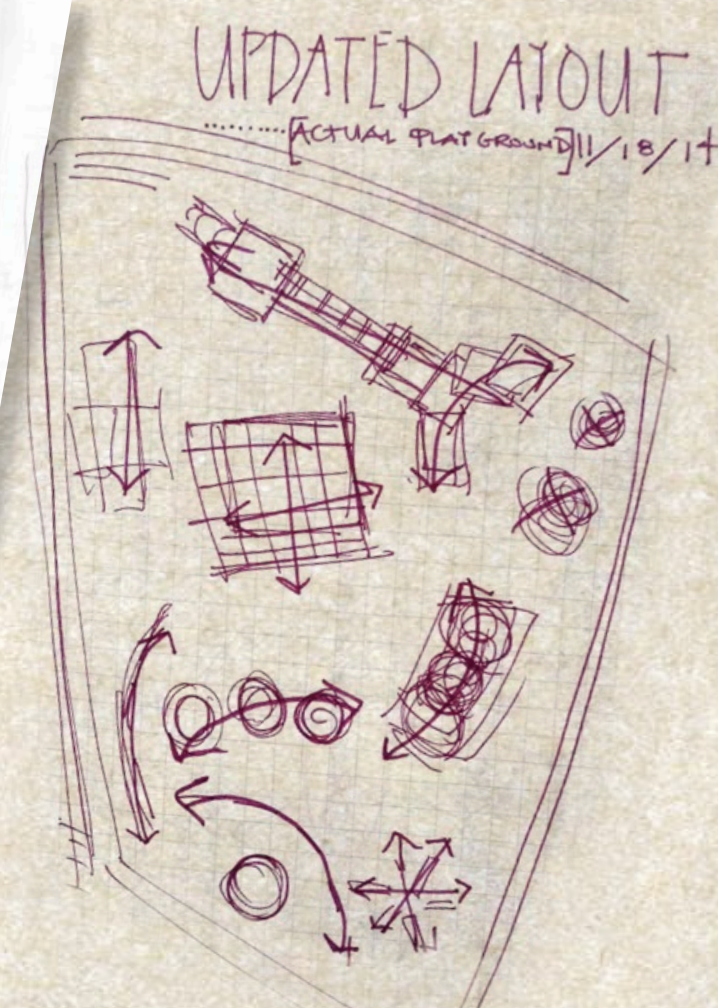
explain the importance of tire size

for 3 construction: 11/18/14  
So much progress today. Had about 10 workers so good division of labor. Welding did not happen today. Told it will happen tomorrow. Poles not anchored yesterday as I was told they'd be as well - that happened today. Sorted tires for all elements. Mounted posts for tire climber. Had to maybe 500 times, but hoping all is now understood. Buried tires in alternating flower. Arranged tire fence & tires for balance beam. Size of ground was smaller than my sketches so I had to rearrange several elements. Still waiting on the slide tower, & wood for platforms. Discussed varnish for all wood & carpenter says an enamel will be best for this type of wood. Happy with progress today! Will return in 2 days

# N17 FENCE INSTALLATION. PLACE AND ANCHOR PLATFORMS AND MONKEY BARS.

day 2 construction 11/17/14

Arrived as fence installation is almost complete. Next task is to install the platform frames & monkey bars. 4 workers, progress is slow as everything is by hand & no 'modern' (construction) technology/tools are being used. Pickaxe, shovel, string, baskets to carry dry cement. No levels, safety glasses, any small things you might expect on a construction site. Digging is awful, the ground is full of rocks & lots of holes need to be dug to anchor all load bearing structure. Things also need to be done over again, things are very inefficient as expected (but this is why I include so much buffer space in my timeline!)



# N18 POSTS ANCHORED. TIRES SORTED, ONE TIRE ELEMENT BURIED. REMAINING TIRES PLACED.

“THE IMPERFECTIONS WERE INSPIRING”

NOTHING GOES TO PLAN; CONTINUOUS ITERATIONS



day 4 construction  
All tires buried upon arrival. Came with the truck of more supplies, the Lord I'm alive - wood for platforms, remaining metal parts, fencing for exterior of playscape, water tank (500l) on site. Not sure yet how we'll anchor it. I'm thinking of attaching wood pieces & cementing? Welding guy is coming today - that's what's being said (we'll see). Most BEAUTIFUL day we've had today, not too hot, loving every second of this before it all slips away + tire climber.

N23 ALL TIRES BURIED. WATER TANK AND REMAINING METAL DELIVERED. TIRE STEPS INSTALLED. PLATFORMS COMPLETED.

N25 SLIDE WELDING PROGRESSED. BALANCE BEAMS ASSEMBLED. WATER TANK HOUSE CUT AND ANCHORED. TIRE CLIMBER ASSEMBLED.



Spent a solid hour on the tire steps. Seems to be a difficult concept to grasp... Stepping away from management on this one & letting them do their thing. Filling them with sand and nailed. Not sure if their method will hold up? Brainstorming....



NOTHING GOES TO PLAN; CONTINUOUS ITERATIONS  
"THE IMPERFECTIONS WERE INSPIRING"



day 5 construction 11/25/14  
Arrived early today. No progress yesterday since we did not come (ordered sand). Welders are on site, today the hope is to complete the slide tower and auditory maze. Recommended proper log but we used the timber last being used for us (wood platforms...), something similar now construction on that.

N26 - D14

RICE HARVEST AND ELECTRICITY RATIONS IN FULL EFFECT. SLOW PROGRESS ON REMAINING DETAILS, FINISHED AFTER 2 WEEKS. PAINTING COMPLETED.



NOTHING GOES TO PLAN; CONTINUOUS ITERATIONS  
"THE IMPERFECTIONS WERE INSPIRING"



DECEMBER15

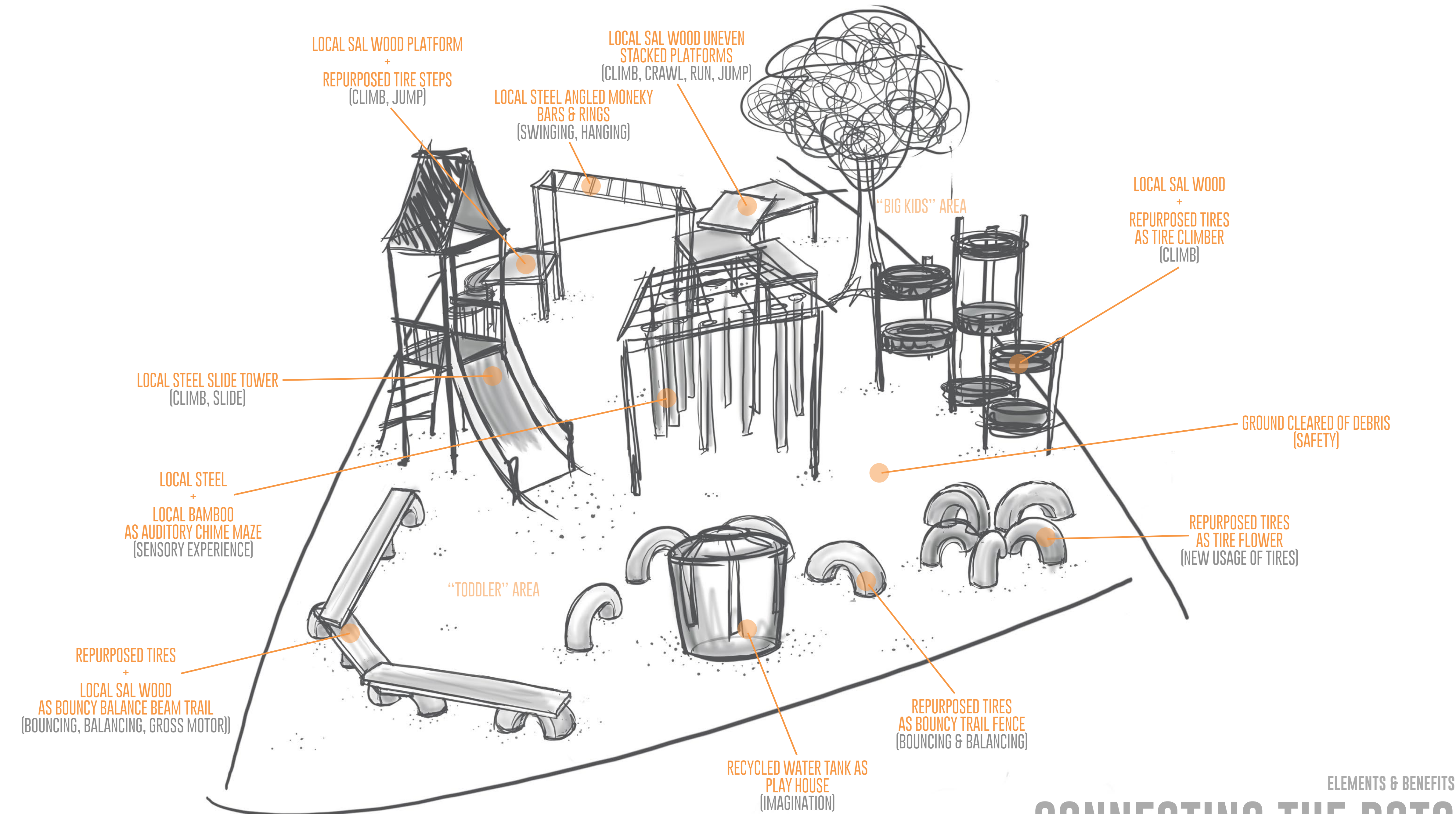


## TILT AT ARVA 5

BENEFITS & JUSTIFICATIONS  
COMPLETION  
PLATFORM DEVELOPMENT







## CONNECTING THE DOTS

ELEMENTS & BENEFITS



LET THEM  
LEARN  
EXPLORE  
PLAY



## END RESULT

A BEAUTIFUL CONTRAST TO THE WORLD AS WE KNOW IT; NOTHING EVER GOES AS EXPECTED.

THE FINAL DESIGN OF TILT PLAYScape IS COMPLETELY INSPIRED BY THE IMPERFECTIONS AND UNEXPECTED OUTCOMES OF MY ORIGINAL DESIGN AS THEY CAME TO LIFE AT ARVA 5. THOUGH THE AESTHETICS DEVELOPED THROUGHOUT THE PROCESS, THE ELEMENTS AND THEIR SYNERGY ARE JUSTIFIED NONETHELESS BY EARLY-CHILDHOOD DEVELOPMENT.

TILT BECAME MORE THAN A UNIQUE PLAYScape FOR NEPAL; IT SERVES AS A CREATIVITY PLATFORM FOR POKHARA. AN EXAMPLE OF A SUSTAINABLE SOLUTION TO CHANGE THE CULTURE OF EDUCATION.

A BEAUTIFUL CONTRAST. SHIFTED PERSPECTIVES. THE BEGINNING OF CHANGE.

