



# ALTERNATIVE MODES OF TRANSPORT (Germany)

3-16 April 2005

Rustenburg

North-West Province

Republic of South Africa

## German group?

- Germany
- Korea
- Turkey
- China
- Romania
- Sweden
- Colombia

# Integral Design?

- Design in need is design indeed  
Non-prescriptive design
- Knowledge driven new approach
- Designing the approach first

**Goal: Life quality oriented new concepts**

# Alternative transportation? **Alternative mobility!**

- Mobility = Walking & Transportation
- Alternative = to what?
- Alternative = why?







# I. Regional Diagnose - facts

- A strong territorial resettlement
- Strong (50...80%) tendency of young people leaving the rural environment for the urban one
- Parallel and different models of economy
- Cross influence of industrial model
- Convergent lines of tradition

# **I. Regional Diagnose - facts**

## **A strong territorial resettlement**

- Settle down
- Being resettled
- Job-bound move

## **I. Regional Diagnose - facts**

**Strong (50...80%) tendency of young people leaving the rural environment for the urban one**

# I. Regional Diagnose - facts

## Parallel and different models of economy

- Natural
- Agricultural
- Industrial agricultural
- Heavy industrial
- Post industrial

# I. Regional Diagnose - facts

## Cross influence of industrial model on

- Agriculture
- Territory
- Desire profile
- Solutioning mentality

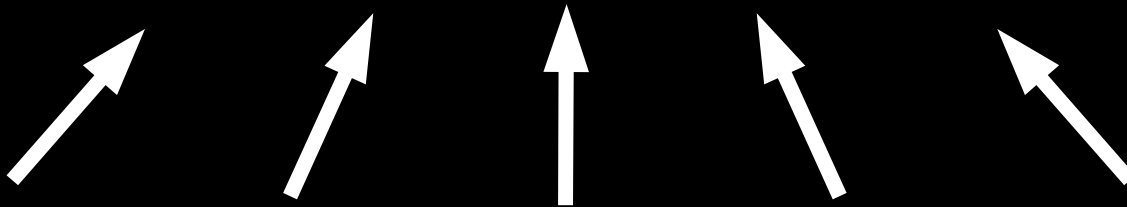
# I. Regional Diagnose - facts

## Convergent lines of tradition

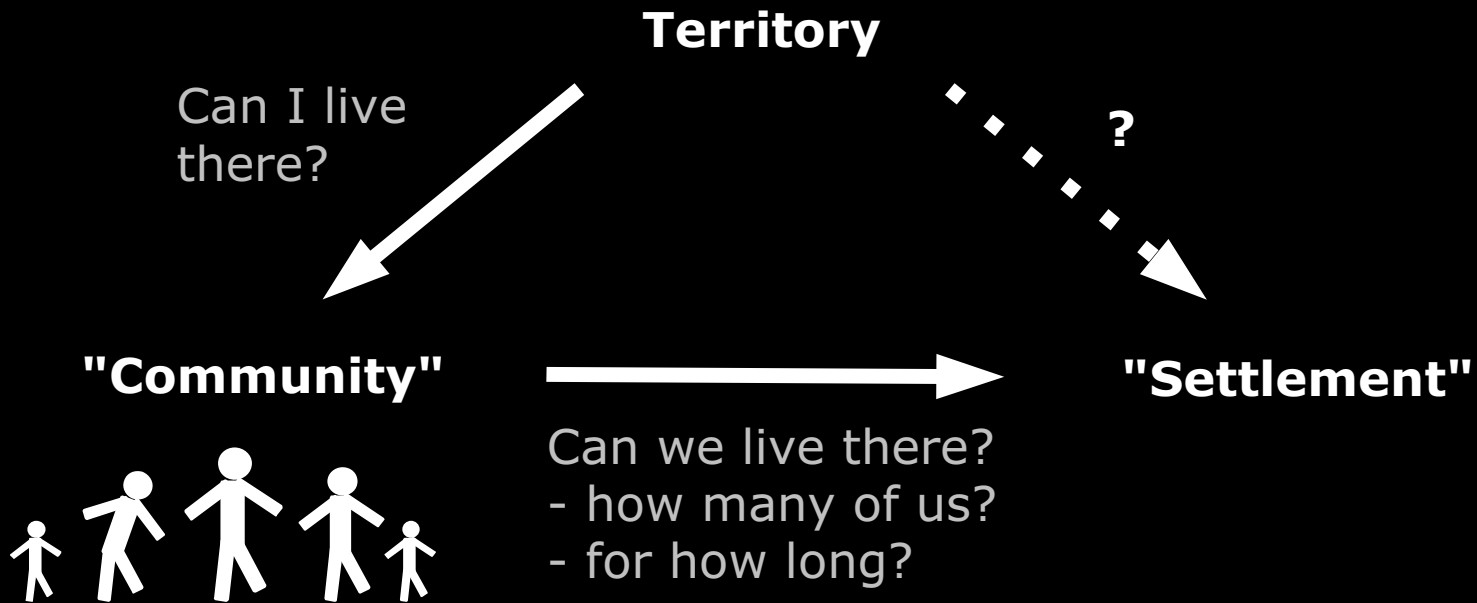
- Nomadic
- Self-adaptive
- Gestaltend

# I. Regional Diagnose

**Conflict between resilient mindset  
(expectancy, behaviour pattern)  
and real territory specific opportunities.**



## II. Transport Diagnose



## II. Transport Diagnose

Territory as an area of **opportunities**.

Community is a **result** of:

- a) density of opportunities in territory
- b) density of opportunities

Settlement is a **result** of a **satisfactory and sustainable** presence of opportunities in a territory.

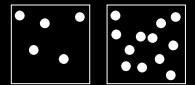
## II. Transport Diagnose

Mobility (Transportation) is an effect of territorial problems

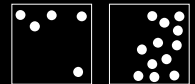
**Territory problems** (reasons for mobility):

"Mobility"  
(transportation)  
is a result of:  
(Category III)

- Density of opportunities (Category I)



- Distribution of opportunities (Category I)



- Size of settlements (Category II)



HOW?



WHY?

## II. Transport Diagnose

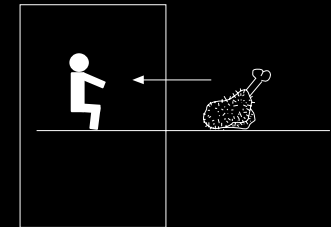
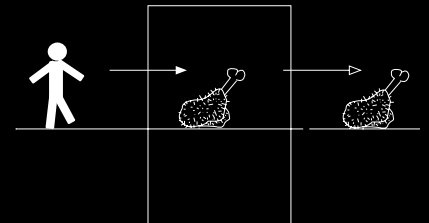
**HOW** to adress the territory problems?

### A) Mobility:

1. Go to opportunity (Nomadic)
2. Transport the opportunity to the user (Logistic)

### B) Alternatively:

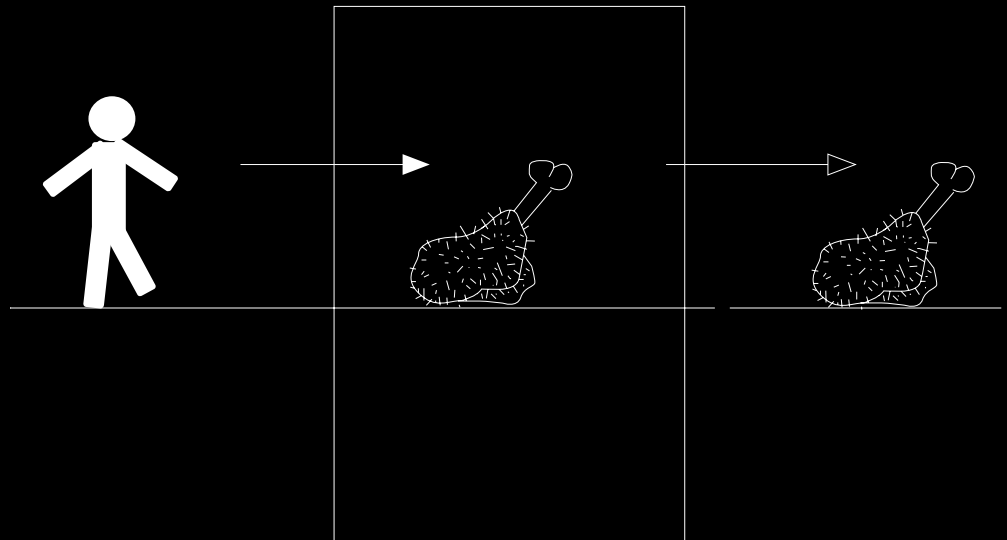
3. Use local ressources (Adapting)
- (4. Create opportunities on the spot)



## II. Transport Diagnose

### 1. Go to opportunity (Nomadic):

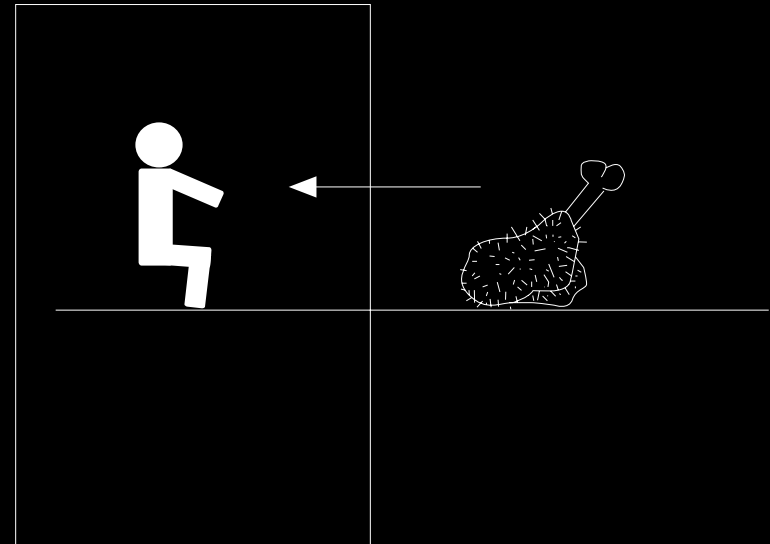
Switching the territory  
whenever needed.



## II. Transport Diagnose

### 2. Transport the opportunity to the user (Logistic):

"Importing" the opportunity  
to the territory.



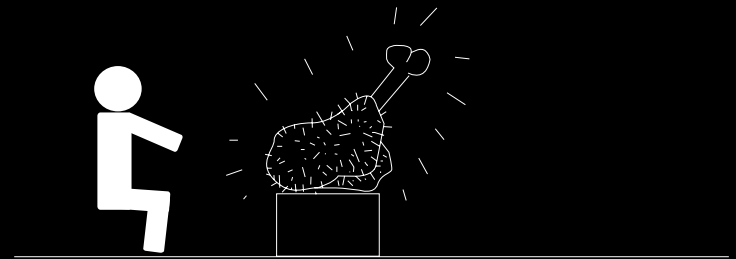
## II. Transport Diagnose

### 3. Use local resources (Adapting):

- Understanding territorial context
- Perceive your own potential
- Learn how to act in a specific area

## II. Transport Diagnose

### 4. Creating the opportunity on the spot (IV. model):



## II. Transport Diagnose

Is the logistic a real need???

Is transportation **the** real problem???



**Sustainable Education**  
of adapting to specific territory

instead of

**Transportation???**

## II.b Options in a new territory

Own expectations  Local opportunities

- **Adapt** (Change yourself)
- **Change territory**
- **Ignore it (Overlay)**
- **Go to some other place**

## II.b Options in a new territory

Own expectations  Local opportunities

**Adapt**  
(Change  
yourself)

- Recognize local opportunities
- Perceive your own potential
- Learn to live on local opportunities
- Adapt yourself (physiology) to territory
- Adapt your needs to territory
- Adapt your behaviour to territory

## II.b Options in a new territory

Own expectations  Local opportunities

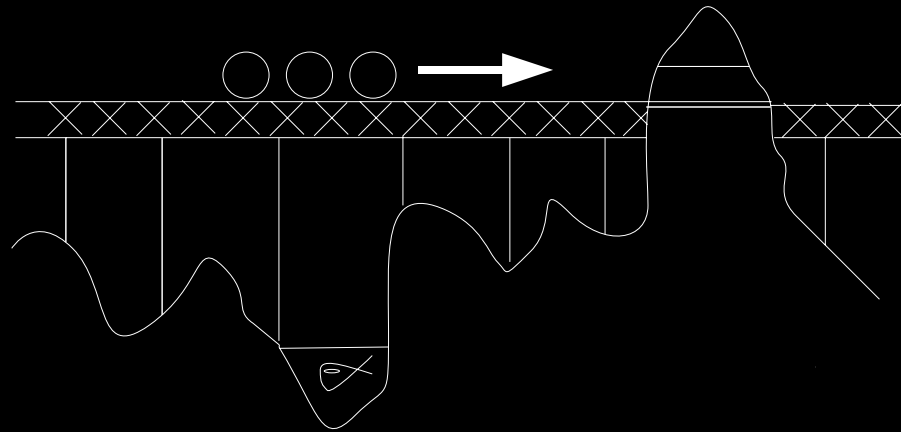
### **Change territory**

- Territorial planning
- Building infrastructure  
(Shelter, Roads, Communication, etc...)
- Networking it
- Importing Materials and energy

## II.b Options in a new territory

Own expectations  $\longleftrightarrow$  Local opportunities

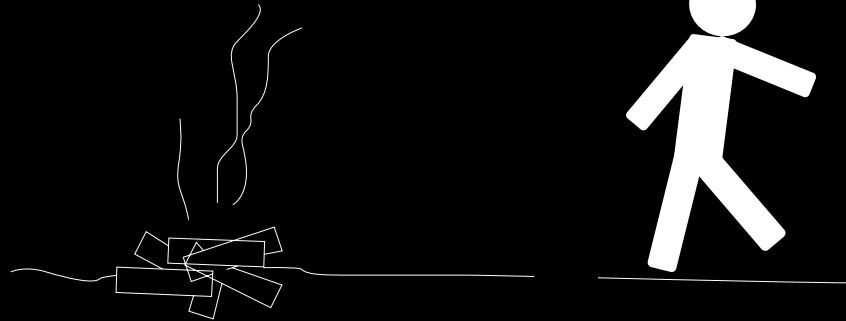
**Ignore it  
(Overlay)**



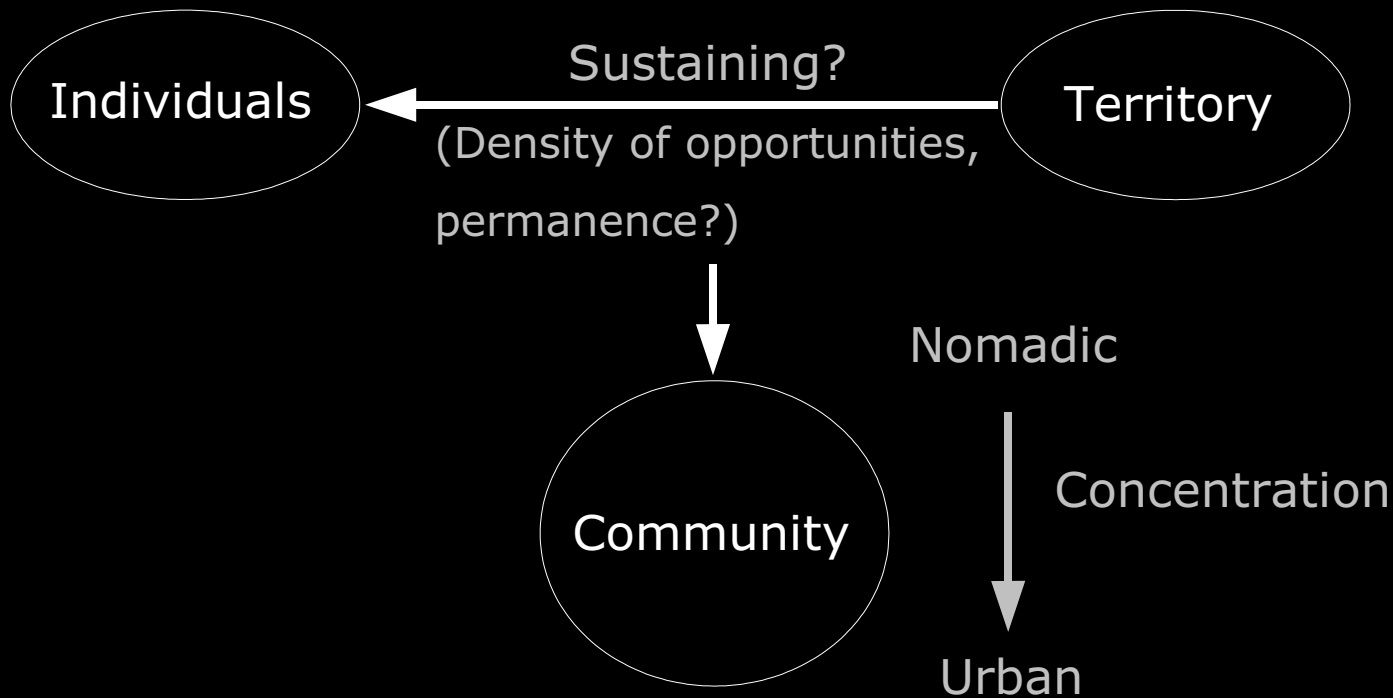
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**Go to some  
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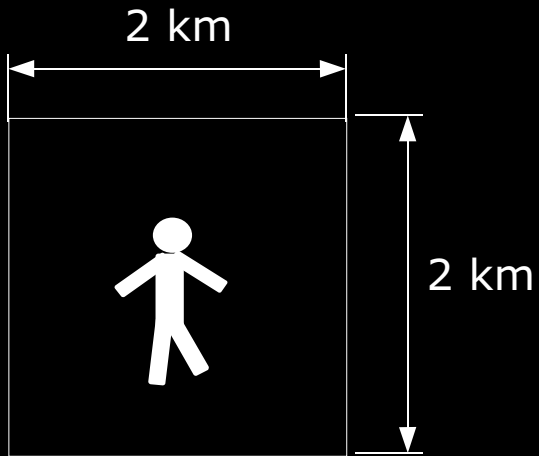


### III. Sustaining Life & Community

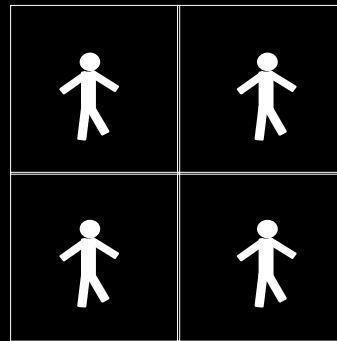


# III. Sustaining Life & Community

Examples for area requirements to sustain the human life



Temperate climate



Desert

$$4 * 10^6 \text{ m}^2$$

## III. Sustaining Life & Community

A "settlement" territory  
is an area of **opportunities**

# III. Sustaining Life & Community

## List of opportunities

### Physiological

- Shelter
- Food
- Water
- External energy
- Special goods
- Care (Health, Old)
- Partner

### Non physiological

- Newness
- Challenge
- Diversity
- Love
- Understanding (education)
- Freedom
- Entertainment, fun
- Care (Health, Old)
- Recognition
- Communication (exchange, advice, information)
- Chi (spiritual value)

### III. Sustaining Life & Community

**Size of settlement**



The amount and **density** of opportunities

**Concentration of settlement**



The **distribution** of opportunities

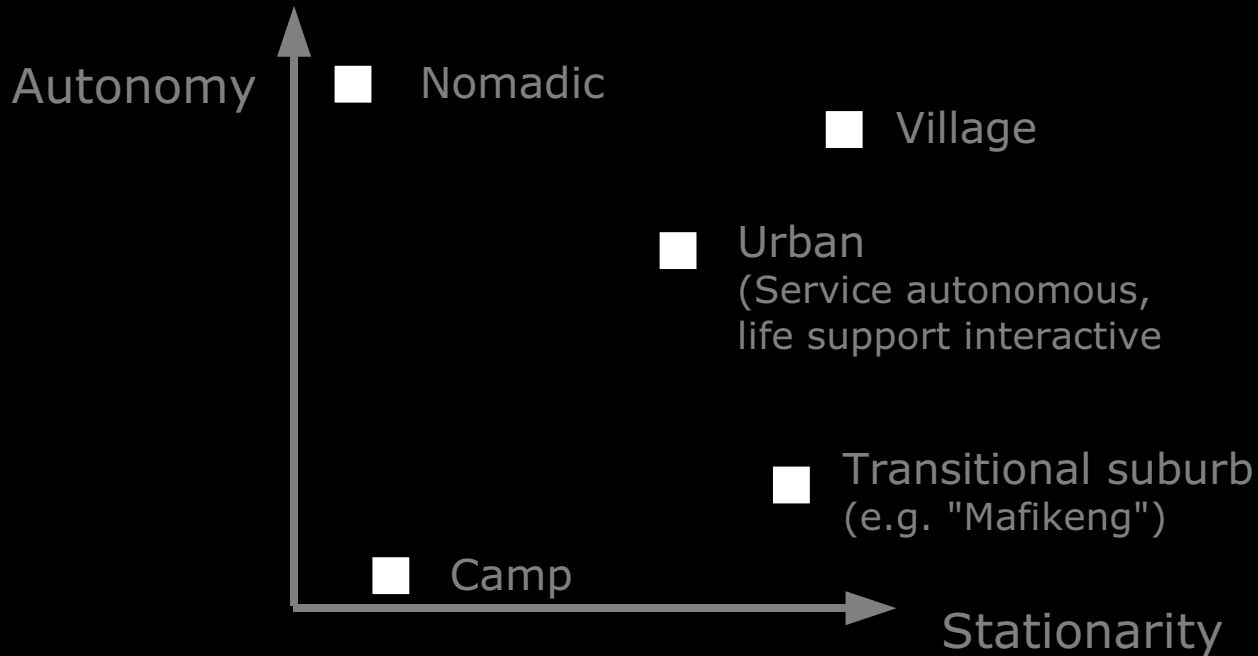
**Stationarity of settlement**



The **sustainability** of opportunities

# III. Sustaining Life & Community

## Settlements in Southern Africa



## IV. Field research

### Structure

- Which type of settlement?
- Stakeholders (see list)
- Input (see list)
- Output (see list)
- Interaction points with the national (regional) infrastructure:
  - Power
  - Running water
  - Storage
  - Mail
  - Health
  - .....

## IV. Field research

### Dynamic

- Self sustaining means:
  - Agriculture
  - Remote payments
  - Else?
- 
- Convergent points:
  - Church
  - School
  - Training
  - Entertainment
  - Market
  - Chief
  - Safe place (money, people, ...)
  - Sangoma

## IV. Field research

### **Spirit**

- Vision:
  - Initiative for making the people unique
  - Use of people's talent

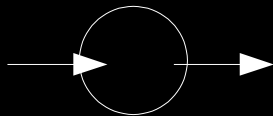
## V. The village as an open system

As a natural (organic) model of social life in a **specific** territory.

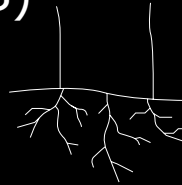
Unlike the urban model, which **is not** territory grown!

It is an interactive (A), endemic (B) structure:

(A)



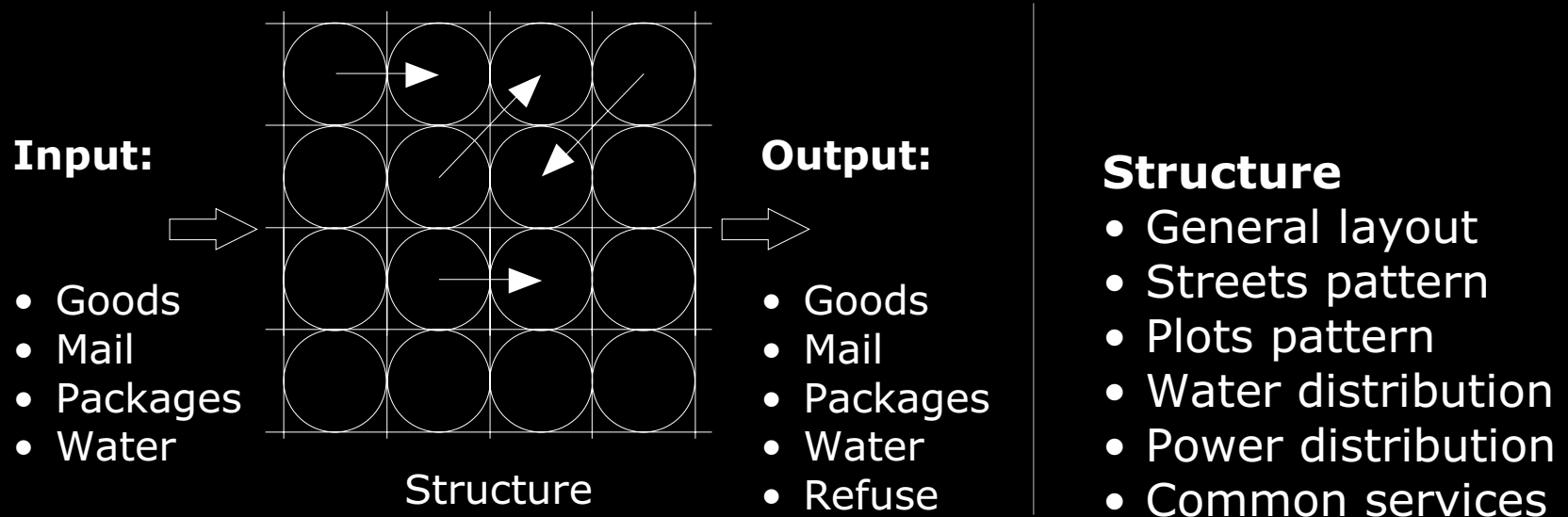
(B)



Relationship to  
territory

## V. The village is an open system

Logistics are a layer supporting the system dynamic

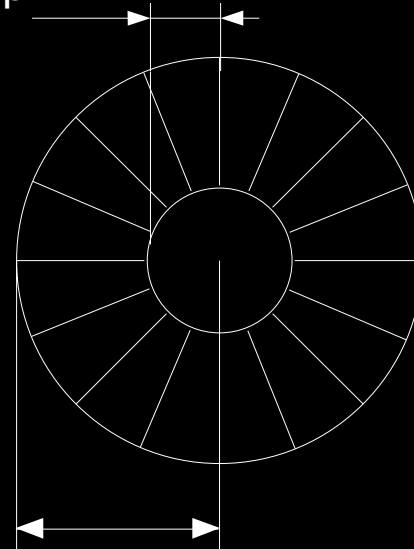


## V. The village as an open system

### Territorial transportation

- Within community
- Neighbourhood opportunities
  - Job
  - Education
  - Shopping
  - Emergency
  - Water

appr. 2 km

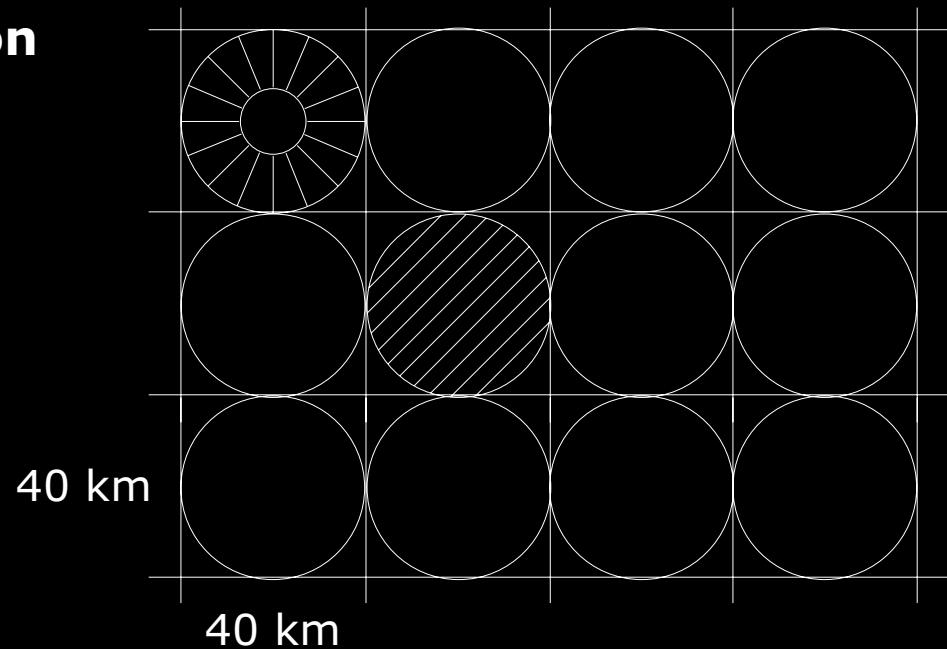


appr. 3 hours by  
walking (20 km)

# V. The village as an open system

## Territorial transportation

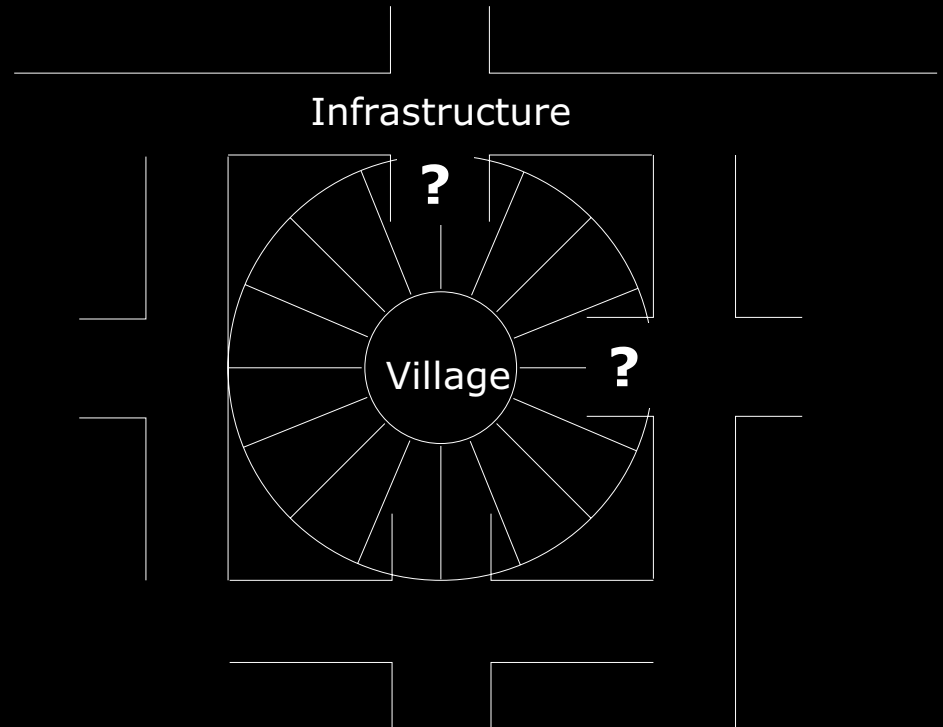
Average travelling time:  
1...2 hours



# V. The village as an open system

## Territorial transportation

Which is the relationship between national and regional networks and the village territory?



## VI. Networking a community

### Relationship

- Family
- (Belonging together)
- Hierarchy
- Friendship
- Love
- ....

### Communication

- Information
- Education
- Missioning
- Insight exchange
  
- Designing expectations
- Designing attitudes

### Physical interaction

- Meeting
- Goods exchange
- Sharing services
- Producing services
  
- Mobility
  - within community
  - connection to regio network
- Roads
- Pathways
- Transportation means
- Guidance

## VII. Limits of mobility

?



**No move**

- **Everybody**
- **Everywhere**
- **Everything**
- **Always**

## **VIII. Solutioning strategy**

**A) Reducing the need of mobility**

**B) Reducing the mobility impact**

## VIII. Solutioning strategy

### A) Reducing the need of mobility

- **Including adaption in territorial planing**
- **Recognizing the local features as opportunities**  
(Landscape, soil, winds, insolation, water reservoirs, weather, fauna)
- **Educating creative living in territory**
- **Education adaptive living in territory**  
(Individual, family, family group, society)
- **Balancing cultural impact**  
(Acceptance of: use mode/procedure, means, fall out)

## **VIII. Solutioning strategy**

### **B) Reducing the mobility impact**

- **Interfaces of low impact on territory**
- **Low maintenance**
- **Local service and repair**

## **VIII. Solutioning strategy**

**Low impact mobility: Require a minimal intervention:**

- **Preparing mobility**
  - Trail
  - Pathway
  - Natural road
  - Gravel
- **During mobility**
  - Lightweight
  - Adaptive interfaces
- **Guiding mobility**
- **Local materials**
- **Local skills**

## **VIII. Solutioning strategy**

### **Stake holder in mobility process**

- **Territory**
- **Interface**
- **Mobile platform**
- **Goods, people**
- **Energy**

# VIII. Solutioning strategy

## Stake holder in mobility process

- **Territory**

- Landscape shape (litoral, mountain, plane, desert, ...)
- Obstacles (rivers, canions, marshes, ...)
- Legal restrictions
- ...

# VIII. Solutioning strategy

## Stake holder in mobility process

- **Interface**

- No impact
- Adaptive (snail, snake, foot, caterpillar, ....)
- ....

## VIII. Solutioning strategy

### Stake holder in mobility process

- **Mobile platform**
  - None (pipeline, cablecar)
  - Lightweight
  - Modular container
  - Specific (goods specific) platform
  - Low speed

## VIII. Solutioning strategy

### Stake holder in mobility process

- **Goods, People**

- Mail
- Water
- Kids
- Women
- Men

- **Goods, People**

- Elderly
- Emergency ill
- Chronically ill
- Disabled
- Dead

# VIII. Solutioning strategy

## Stake holder in mobility process

- **Energy**
  - **Own**
  - **Gravitation**
  - **Bio, Zoo**
  - ....

## **VIII. Solutioning strategy**







- 1. Low impact mobility**
- 2. Adapt mobility to local territory**

## VIII. Solutioning strategy

### Alternatives to:

| Relevant loads                                  | Distance  | Target/goal    | Acceptance vs. now         |
|---|-----------|----------------|----------------------------|
| Kids<br>(Weather, distance, security)           | 3...18 km | School > home  | Walk, Bicycle, Donkey cart |
| Ill, disabled<br>(Impact, speed, hygiene)       |           |                | Taxi, ambulance            |
| Wood<br>(Branches, amount for a week, at once?) | 15 km     | Forest > home  | Head (scarf), Donkey carts |
| Heavy volume stuff                              | 3 km      | Massimo > home | Wheel barrow               |

# VIII. Solutioning strategy

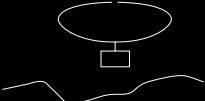
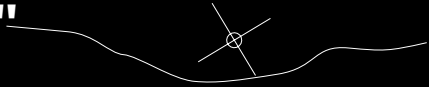
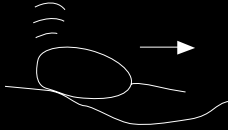
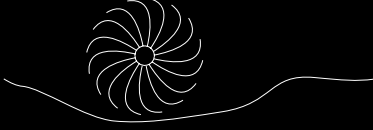
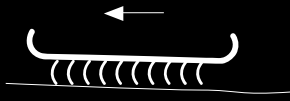
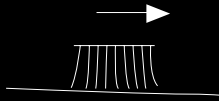




|                                | Mobility impact /interface on territory   | Mobility mode  |
|--------------------------------|---|--|
| <b>zero</b>                    |  <p>Hot air balloon      Kite      Tarzan</p>                 |  <p>On the spot</p>                         |
| <b>inter-mittent (digital)</b> |  <p>Sliding "jelly shoes"      Catapult      Jumping frog</p> |  <p>Bucket transport</p>                    |
| <b>continous</b>               |  <p>Railway      Cablecar</p>                               |  <p>Pipeline      Cablecar w. buckets</p> |

## **IX. Some thoughts**

- A) No wheels mobility**
- B) Monostick, wheeled bag**
- C) Rail**
- D) Donkey caravan**
- E) Scooter**
- F) Scooter and/or trailer**

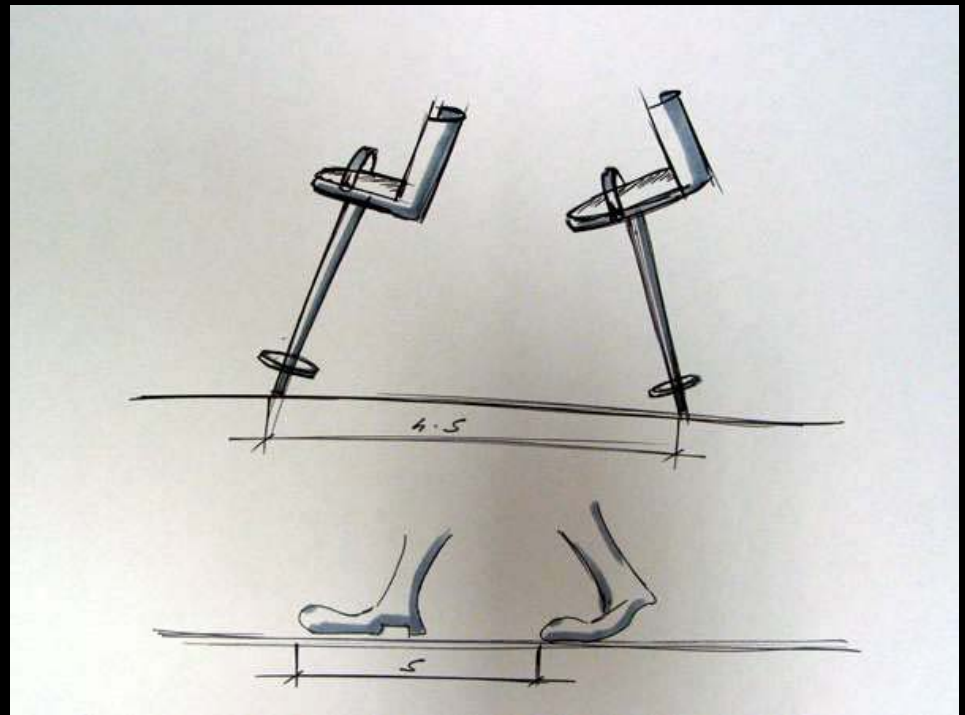
# IX. Some thoughts

## A) No wheels mobility

|  |  |
|--|--|
| <ul style="list-style-type: none"><li>• <b>Hot Air</b></li></ul>          | <ul style="list-style-type: none"><li>• <b>Spike "wheel"</b></li></ul>  |
| <ul style="list-style-type: none"><li>• <b>Bumping baloon</b></li></ul>   | <ul style="list-style-type: none"><li>• <b>Brush "wheel"</b></li></ul>  |
| <ul style="list-style-type: none"><li>• <b>Air cushion</b></li></ul>      | <ul style="list-style-type: none"><li>• <b>Brushlegs</b></li></ul>      |
| <ul style="list-style-type: none"><li>• <b>Polyp bow</b></li></ul>      | <ul style="list-style-type: none"><li>• <b>Sleigh</b></li></ul>        |
| <ul style="list-style-type: none"><li>• <b>Soft "wheel"</b></li></ul>  | <ul style="list-style-type: none"><li>• <b>Feet</b></li></ul>         |

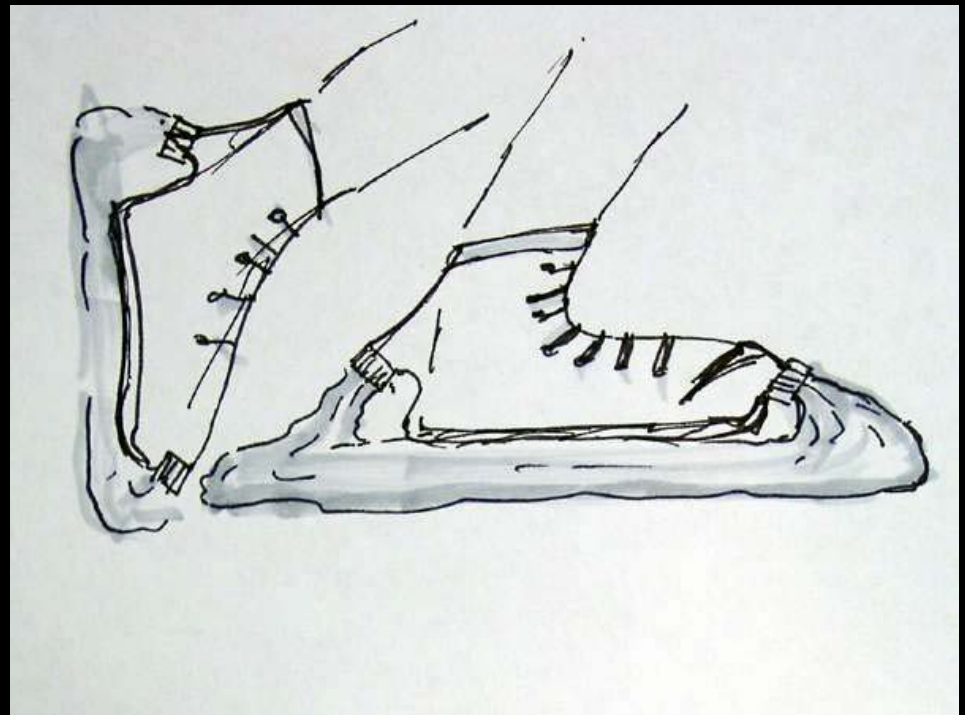
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## IX. Some thoughts

A) No wheels mobility



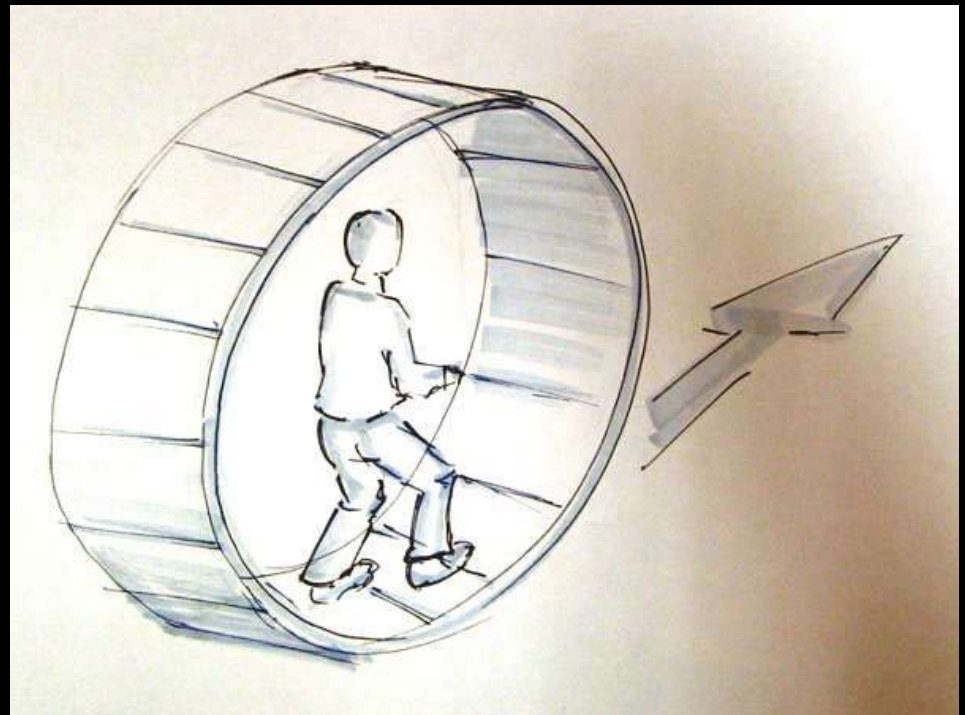
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### A) No wheels mobility



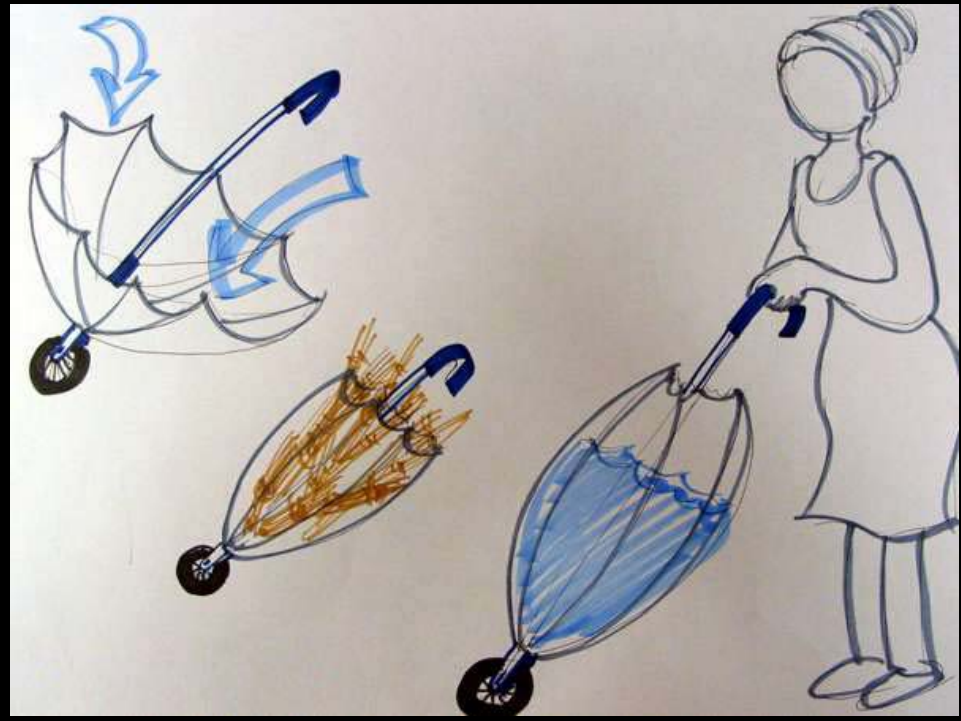
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B) Monostick,  
wheeled bag



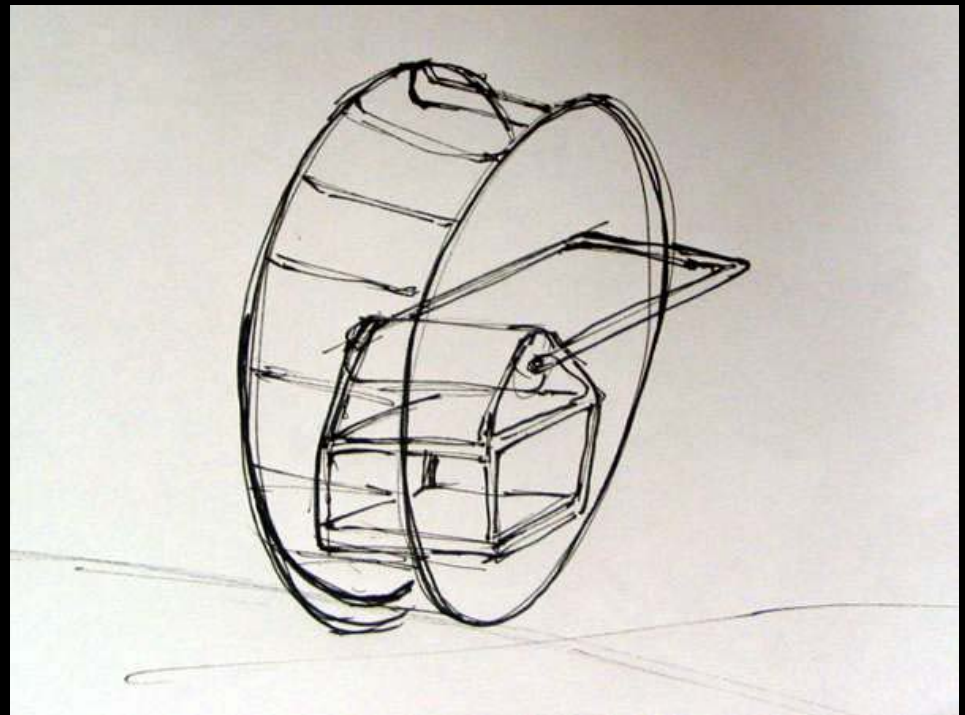
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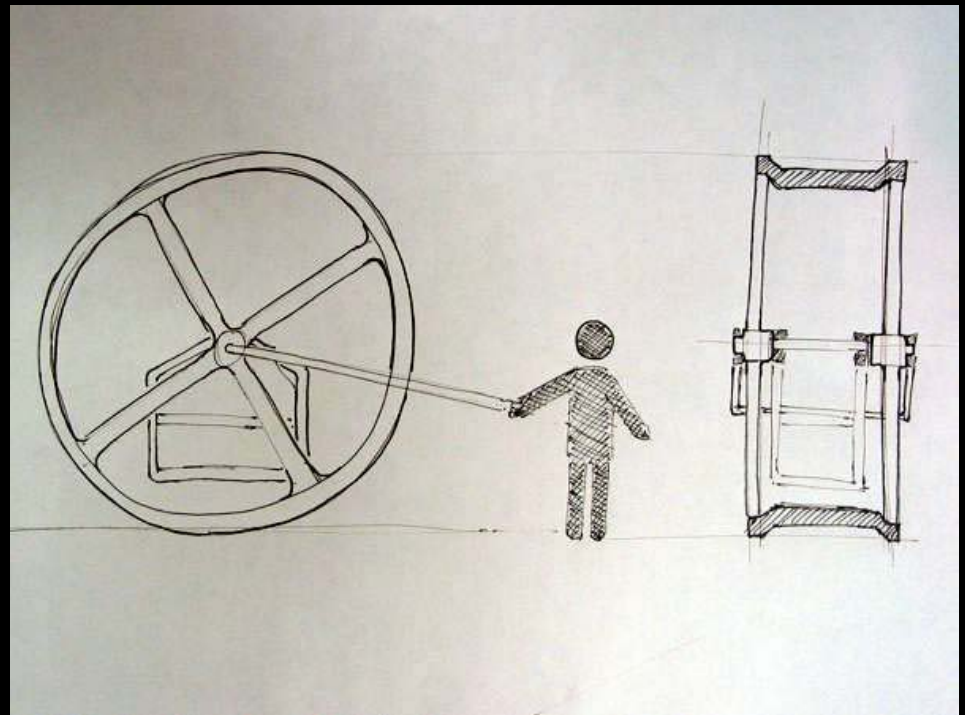
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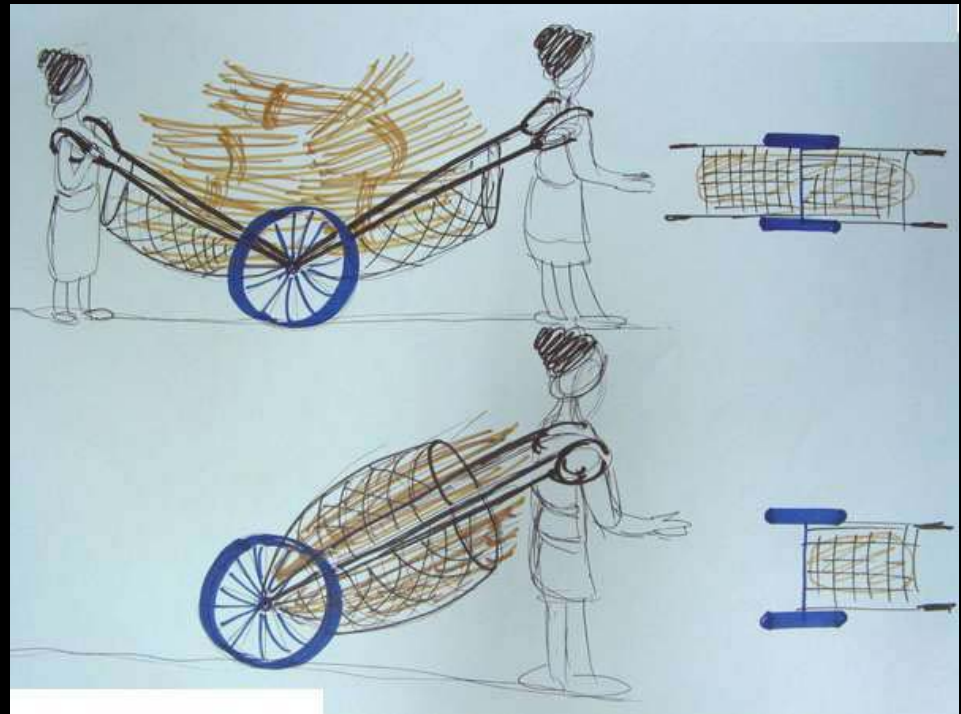
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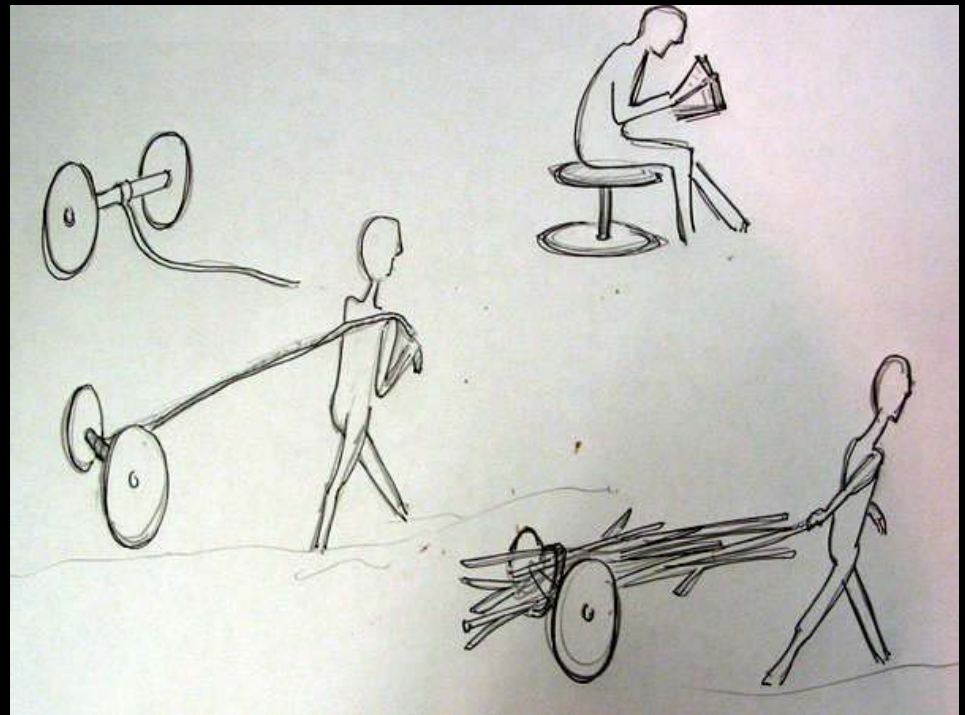
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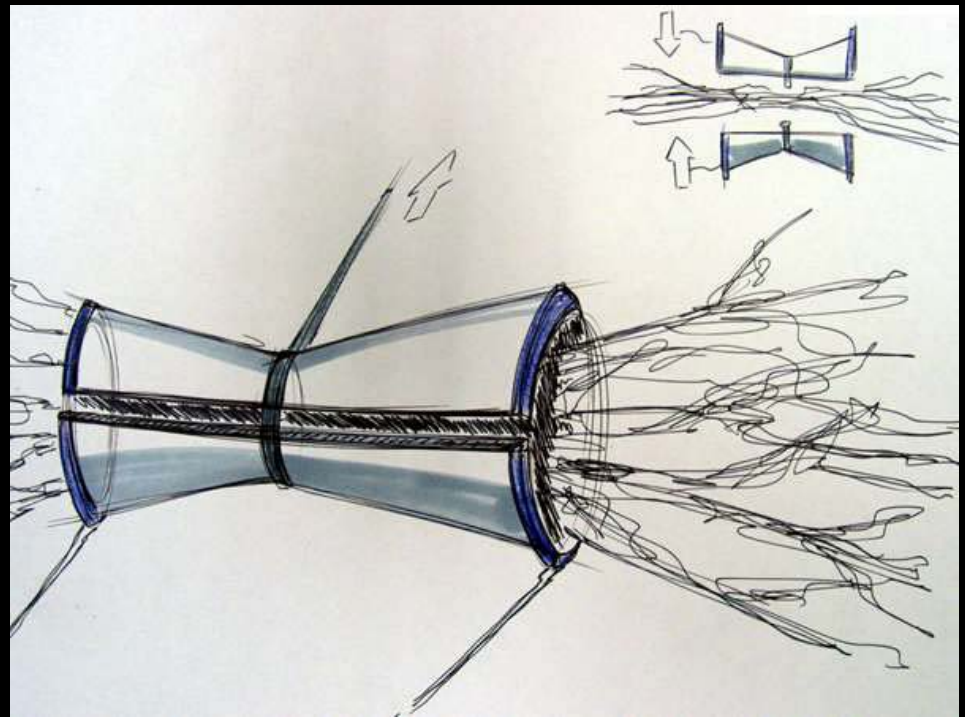
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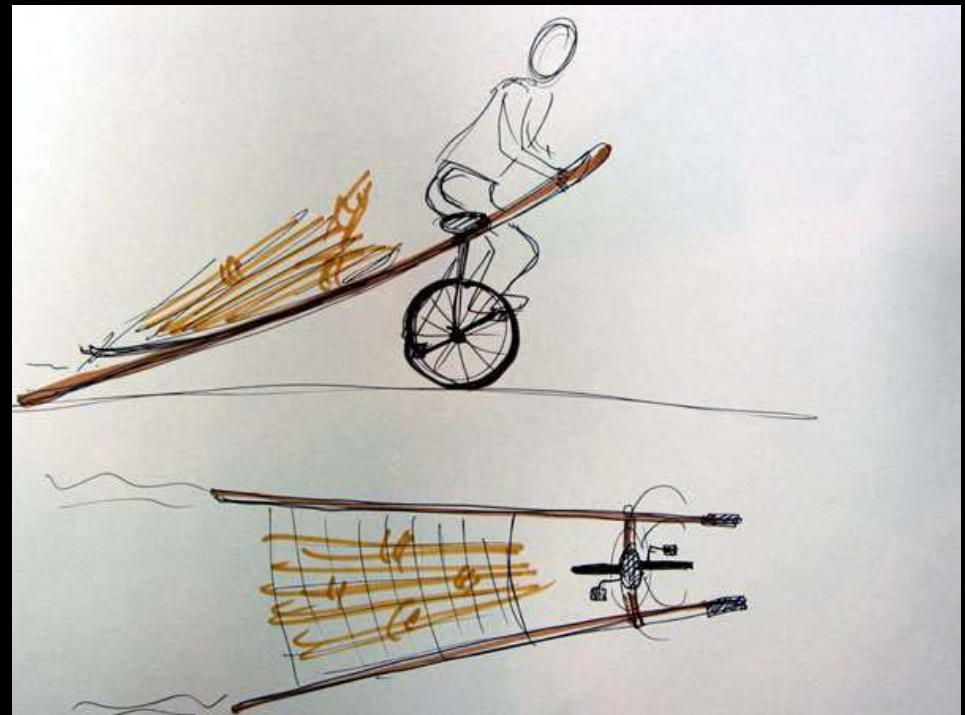
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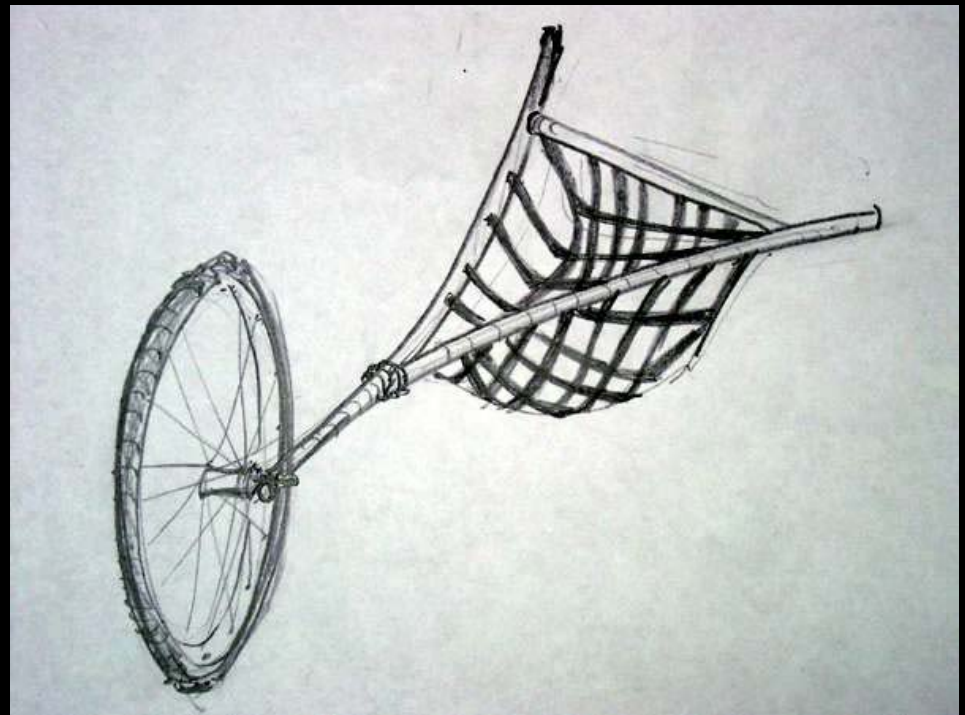
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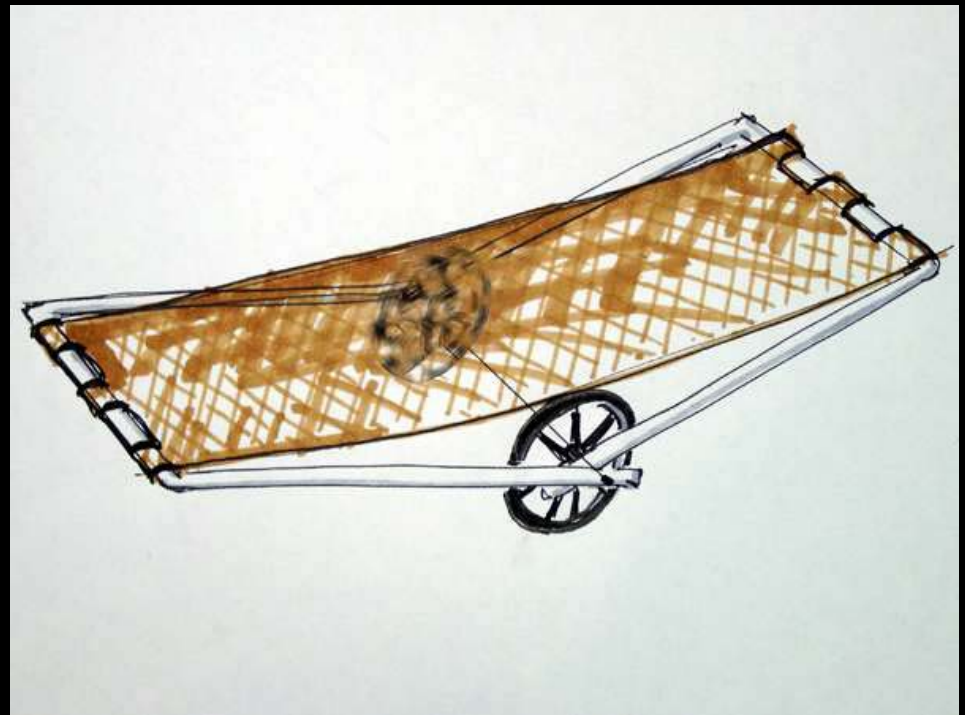
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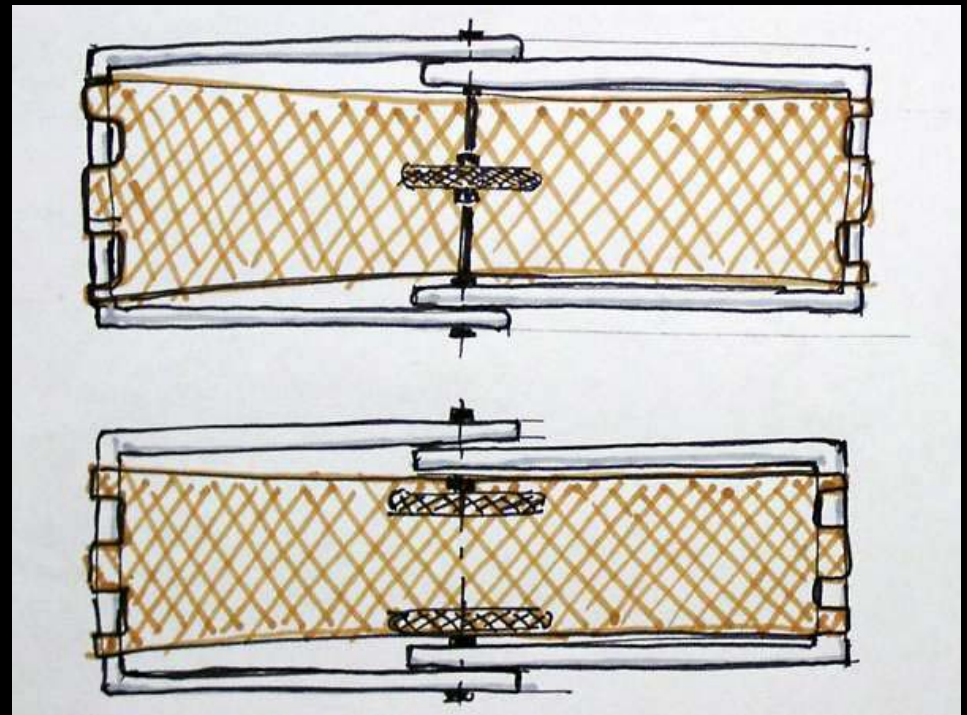
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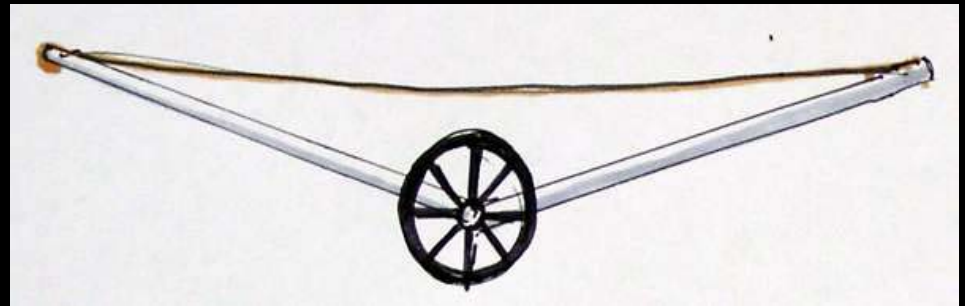
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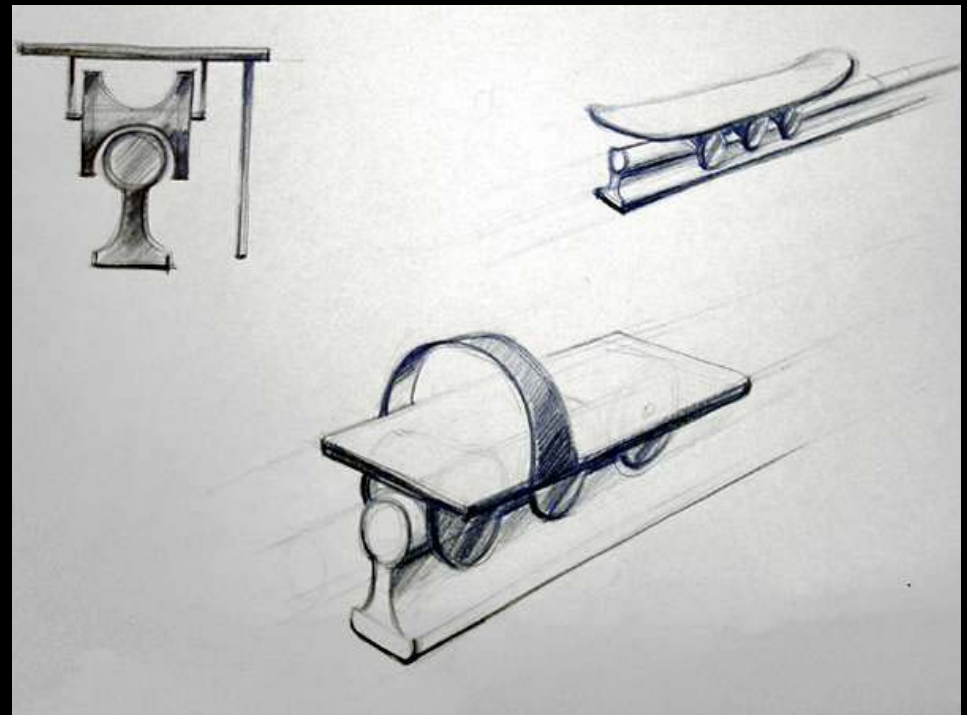
### C) Rail

Minirailway, using  
mining rails



# IX. Some thoughts

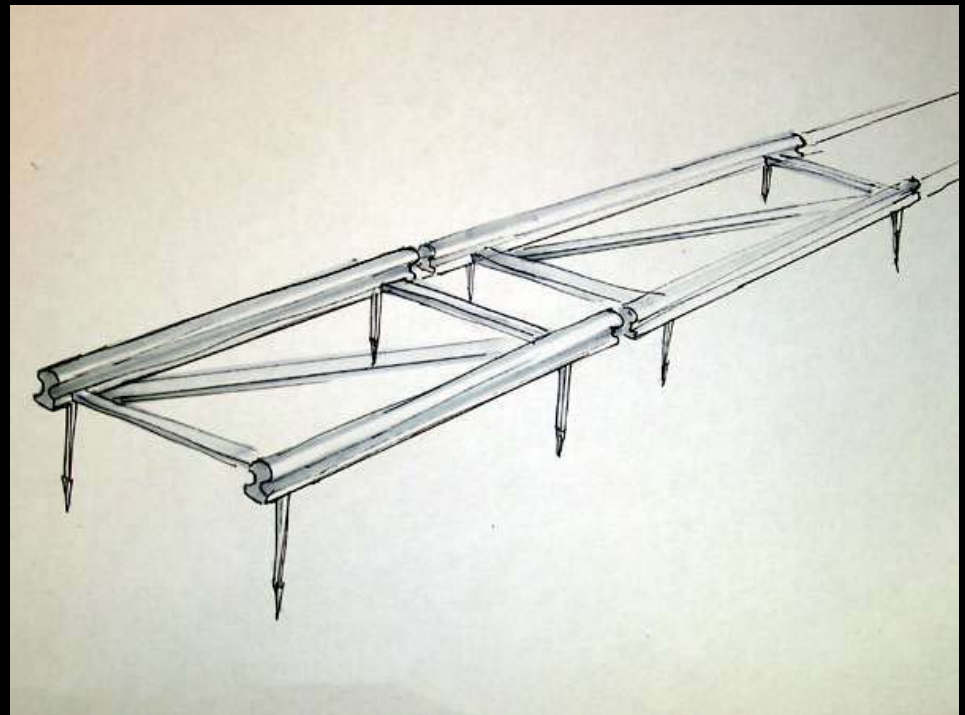
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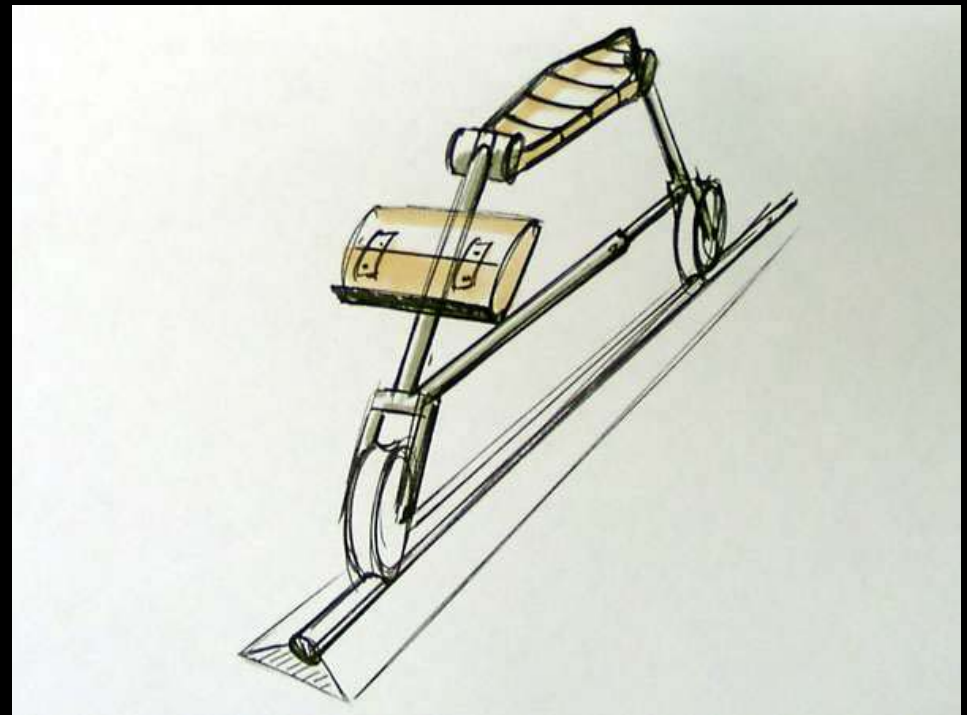
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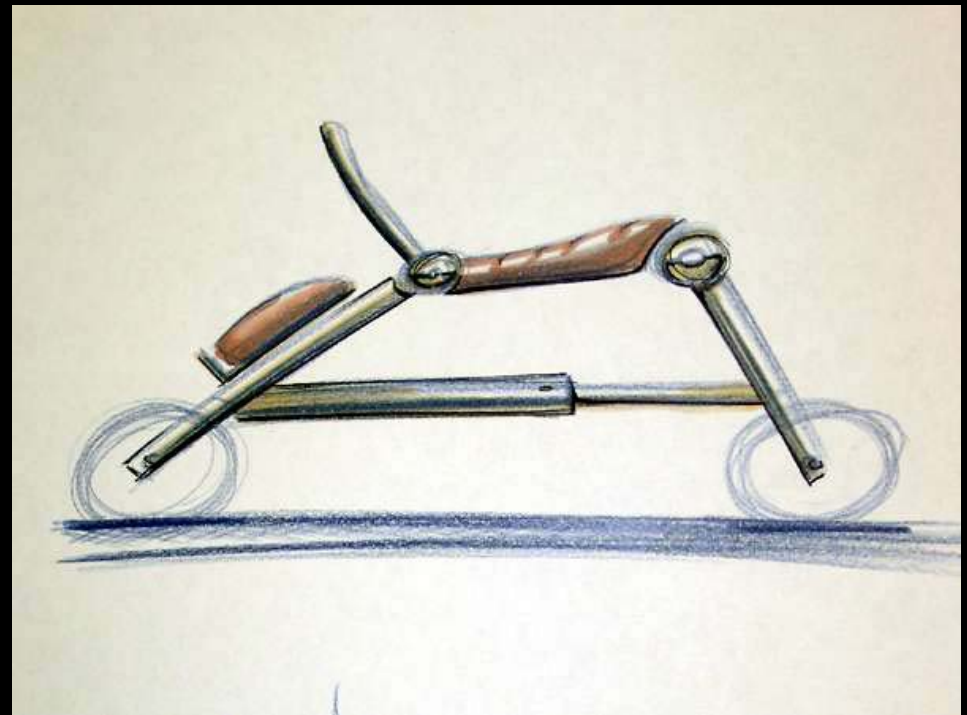
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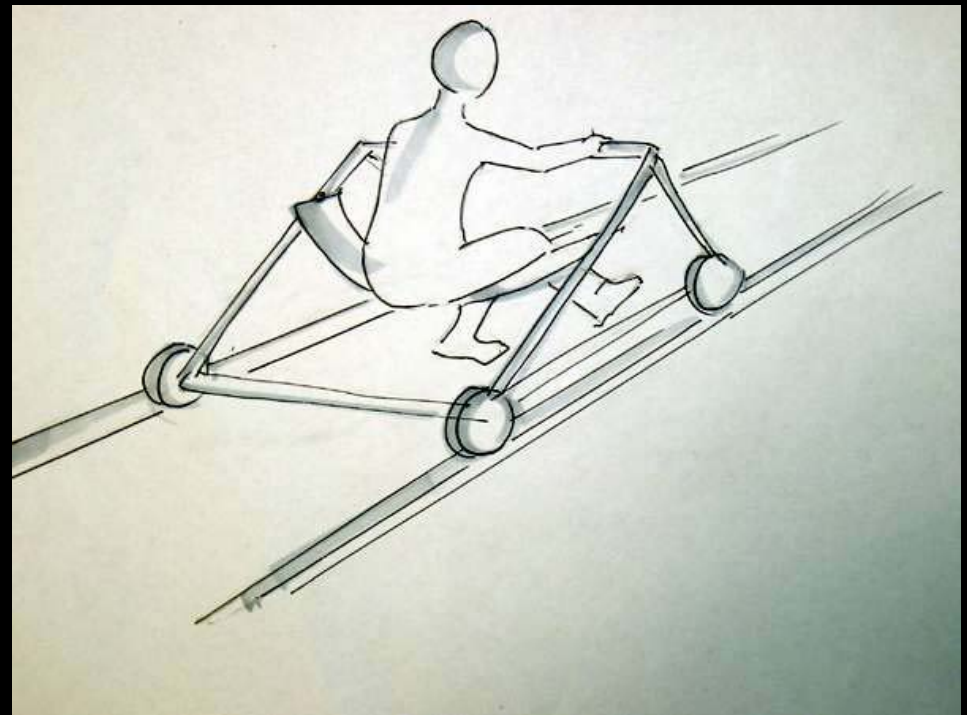
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## C) Rail



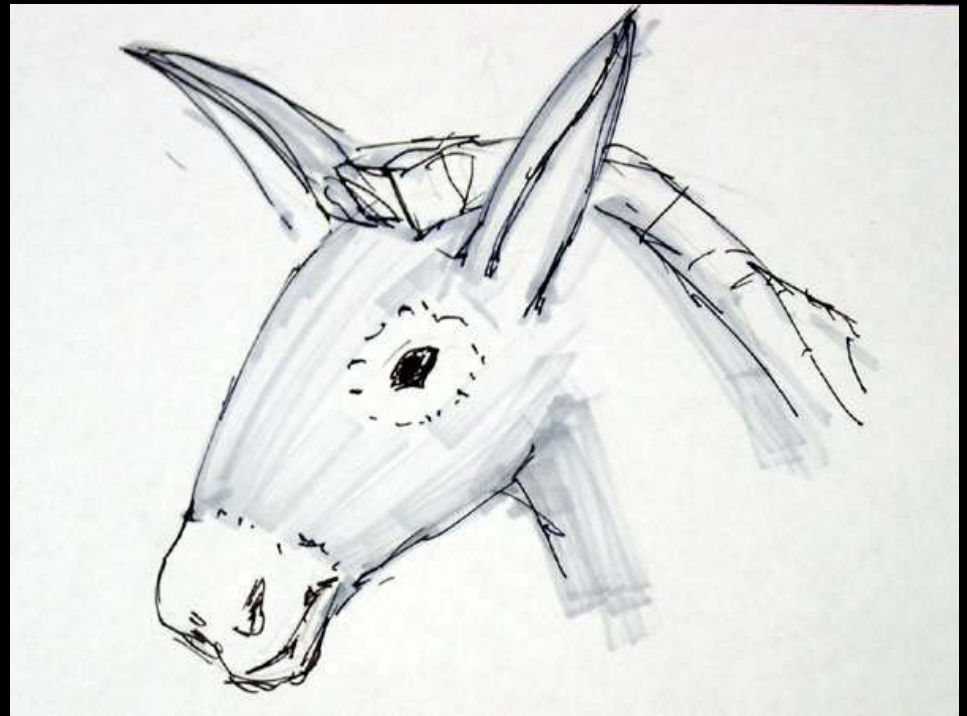
# IX. Some thoughts

## C) Rail



## IX. Some thoughts

G) Donkey / camel  
caravan



## IX. Some thoughts

G) Donkey / camel  
caravan



**Kea Leboga!**

**Thank you!**