

The question I have concerns economic development. You **have** to have economic development, (includes organizations balancing their books and increasing GDP) whilst a society has to drastically reduce its impact on the environment. I would like to see a society that handles reducing environmental impact drastically whilst growing economically.

I would like to visit a place that has achieved that and is good at balancing the two.

## **Tapescript: Economic growth/Logistics**

I enter the departure lounge, again a shiny bench and rubber plant.

“So you want to do something different?” the facilitator says.

Why don't you revisit PORENA instead? The problems are related.

(It is true I had this question as well on my list. Why I wanted to revisit PORENA was to investigate the problem of distribution and logistics, getting things to households, computer heating lighting computers TV etc.)

Not one to mistrust wild impulses in an image stream, I set off for PORENA.

Round the corner the London bus is waiting. I get onto the old-style Double Decker. The conductor rings the bell and we set off.

We travel past the side of the mountain I visited earlier. We speed along a dual carriageway and turn off into a small country lane.

I see the now familiar walled city, surrounded by hills. The bus pulls into the arrivals area and I walk off straight up the stairs to the circular walkway on the second floor.

For image streaming to work I know I must create a beachhead door. What better than the door to the logistics office which turns up on the right? I open it and enter.

It's a rather busy office with people milling around, some looking a giant maps.

“Excuse me; can anyone explain how logistics works in this place?”

“Sure, where would you like to start?”

I look over their shoulders and the radial plans of the city.

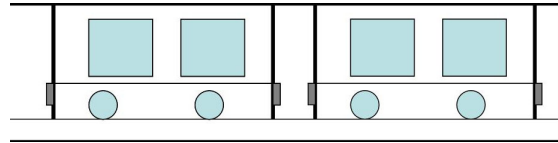
The tubes are the best place to start.

The city has an underground system of tubes, working on a vacuum.

We start in the residential area, to visit a distribution point. It is sort of like a small hut where the goods emerge from. Under the hut is this underground pipe way.

I think the dimensions are 6 by 2 meters, or maybe handling two or four pallets.

Anything that uses a pallet can be sent that way.



“How do goods get sent here if that is their destination?” I ask.

“They are pushed out from the pipe system onto a passive conveyor belt. Most things can be put on it, furniture, etc.”

“What carries it? “ I ask. “How is it conveyed, controlled?”

The system is controlled from one distribution point. Goods arrive for example at the station and are loaded into the pipeline. The pipeline holds capsules containing the pallets. The capsules are pushed around and controlled rather like a physical version of the electronic packages that make up the Internet.

“So you transfer packages via this system of tunnel ways to this point, and people come and get them when they are available. “

“Oh yes! There is plastic over the pallet to protect it from the weather. The left-over package material goes in the other side to be sent for recycling.”

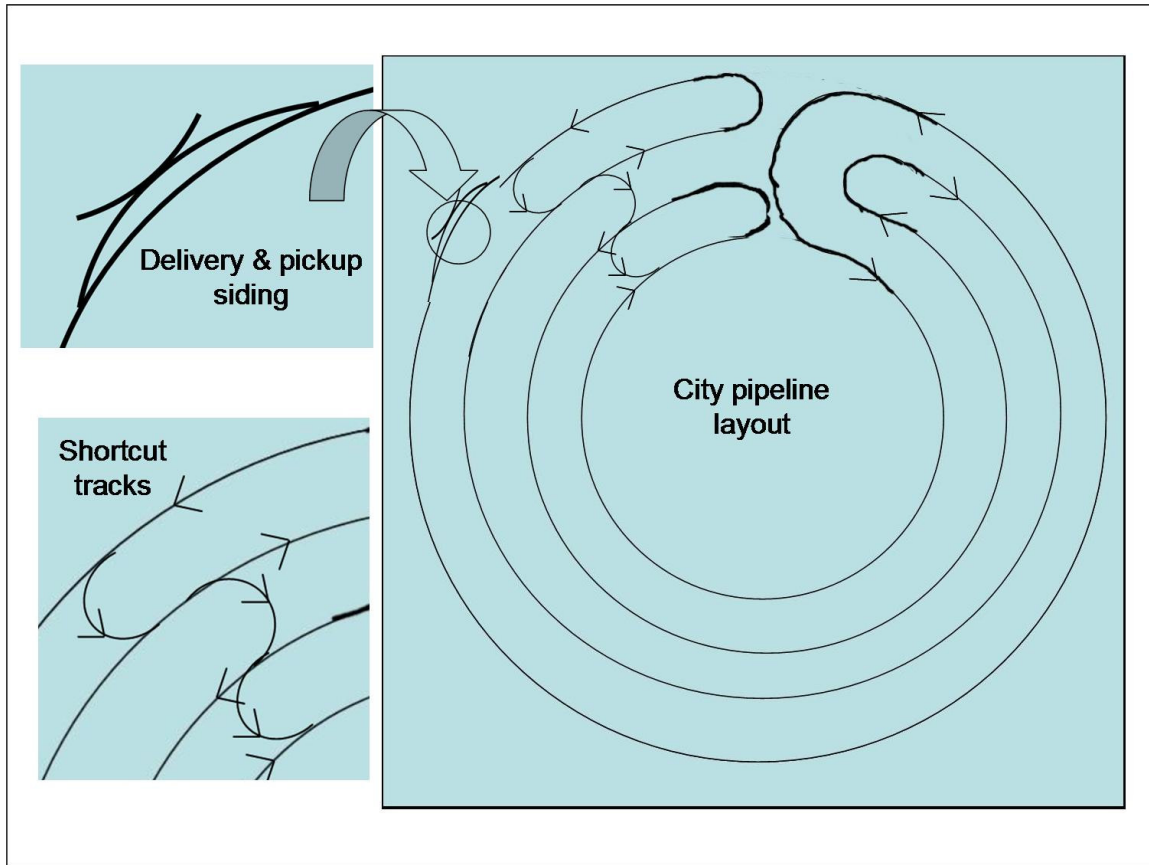
The pallet rolls down under gravity back into the pipe.

I wonder about heavy stuff. How people carry furniture etc to their houses from these points.

I see they use a hand-powered cart with fork lifts and lifting devices to carry heavy furniture to the residences. They are communal and kept in the communal storeroom.

Medium size stuff, computers etc, come the same way.

That brings me to consider the security problem.. someone else “receiving “ my package... but I get no answer just now, the whole possession thing is not cleared up in my mind.



We walk back to the control room.

I wonder how these things are propelled. Something to do with air. Are they blown along in a vacuum tube? I think I have seen a design like this for office documents. There's a machine blowing air into the system which keeps it moving.

When it comes to its destination, a door opens and it gets shot out into the distribution point.

Is there some kind of hydraulic principle here – the way air acts hydraulically, like a big piston pushing air slowly into a narrow tube? I would have thought blowers would be the answer.

As I describe, the images become clear.

Each capsule, which fits exactly into the tube, runs on rails, pushed around by air. The capsule carries the pallets inside until it arrives at its destination. There is an electronic sender on each capsule/Pallet. The capsule shoots around the system, the sender gets points to change and airlock doors to open up.

The capsule rides along the rails 30km/h, comes to its exit, points change, track exits onto an airlock, and it pushes its load onto the passive conveyor.

I study the plan on the wall. It is not really radial, more like a mandala. One dark-haired person

presents himself as an expert. I ask to see the overall layout.

Time for borrowed genius. I enter through his head into his eyes. The map on the wall shows several circles. It seems to be a continuous loop, you go from one to the other and back the other way. The capsules are controlled by radio tags.

Goods come in from where they are manufactured in the second zone, just outside the inner administrative zone. Trains come in leave stuff and take stuff. Everything is transferred to the pipeline system. Then it goes to the manufacturing area. After that it leaves for its final destination, a distribution point.

They have actually abolished parts of large goods retail as I know it. Retail's virtual here. You order what you want and the goods go direct from manufacturing to customer. You can get what you want a little more customized that way.

Everything is assembled on site. This is to achieve a minimum of material in movements. As much as possible is done locally. We are not talking sand to silicon chips to TV. What we mean is that the final assembly is done locally. This final assembly is possible like this because of the way products are designed. Each product is assembled from a combination of modules. Assembly is done by a

specialized assembly house, and the products are designed to be easily assembled in these houses.

The manufacturing area also houses component manufacturers who either make components or modules. Heat is reused into the heating systems, so manufacturing is advantageous to have in cities. And you have a lot of people around who can walk there.

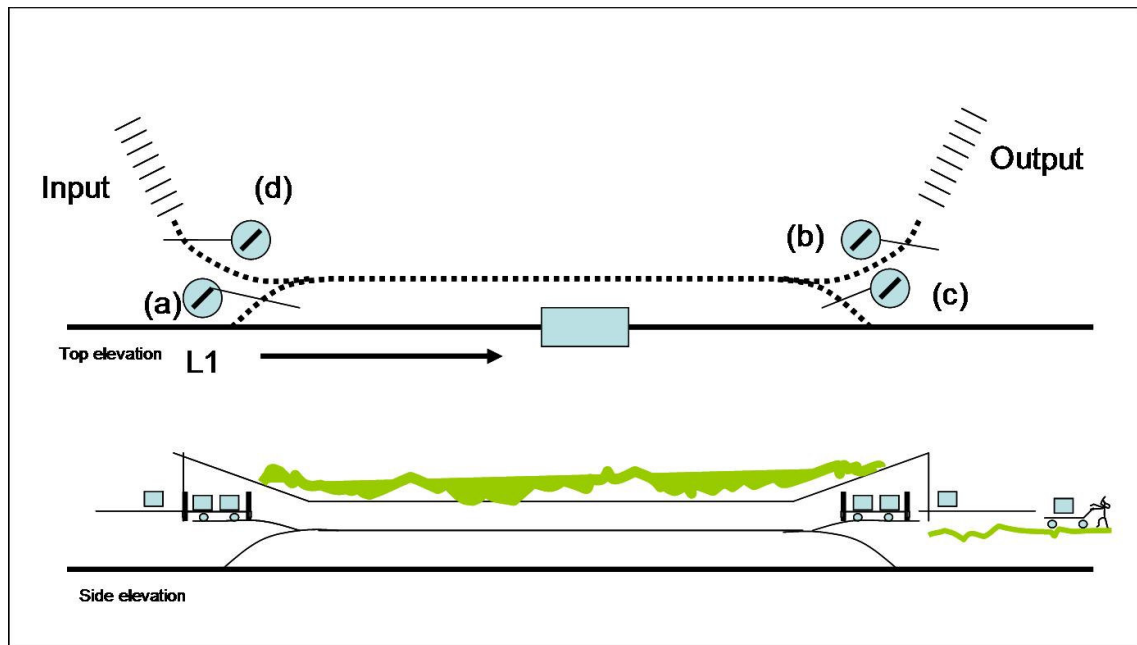
Tapescript notes: At this point I believe it might be advantageous to explore what one "cell" or section of the pipeway might look like so I drew a diagram.

When a capsule reaches point L1, the radio tag causes the points to switch it into the siding and up

I leave my logistics genius and try to find someone who will help me with the propulsion system. I see a big cylinder construction from the window of the control room, and this is part of it. He takes me down near the park, to show two gigantic cylinders. Inside them there are pistons driven by an electric motor. These produce the propulsion force, not a blower.

Each exit point the main outlet airlocks. Think of the cylinders as a bicycle pump. You can run the whole system like this just on two propulsion points. The pipeline is like a cycle tyre. The role of the pumps is too keep the pressure up. I hear 3 bar (three times atmospheric) for 30 km/hr but I am no expert on this side of things.

The pressure disappears every time the doors open so the doors have to close quickly. (I see a likeness



to the distribution point "Output".

to the ghost train at the fair but say nothing.)

The goods are pushed onto the passive conveyor. I think the capsule, as it is on rails, is easy to manually push back into the pipeline system. For that to work all airlocks should be shut except (b). The truck rolls passively into the siding.

At the exit points gravity slows the capsules down, although they do have their own breaking systems. The capsules have low rolling resistance and can be pushed by hand. People power is good. I am reminded again of the PORENA philosophy of not taking away physical efforts from daily life, rather avoiding stressing or straining the body.

If someone at the input point has called a capsule, and one is detected in the siding, there is an automatic opening of airlock (c). Airlock (d) opens and the capsule is propelled toward the input point.

The pumps are located at strategic points around the circle.

Once filled and pushed back into the system, starting with airlock (d) opening briefly to allow it to pass into the siding, as it closes (a) opens and then (c) to send the capsule back to the main circuit.

Control is passive. A control logic is built into the system. Trucks can move around empty or be waiting at special sidings. You can always call for a truck.

Turning to a more general discussion of logistics, I get the feeling there could be actually 4-5 different

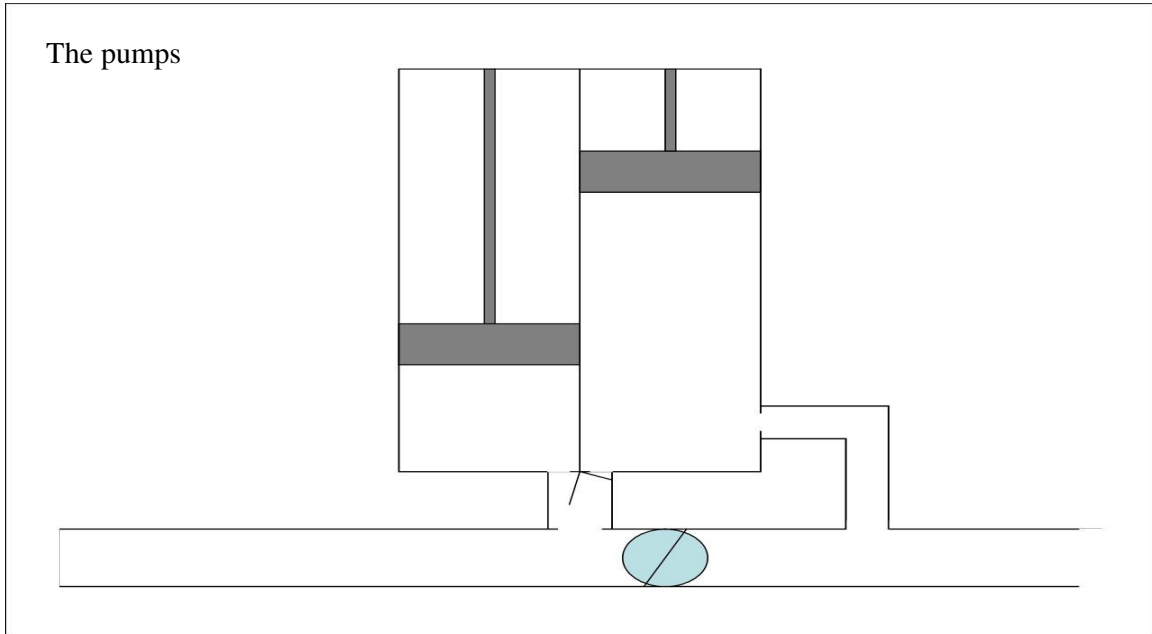
types of vehicles in Porena, even motorized vehicles. Maybe we can talk about construction or rebuilding where larger things need transporting. Like construction vehicles?

They are actually not against using lorries for construction. That is where motorized vehicles come into their own; earth moving and earthworks.

a heart beat. And the airlock doors throw themselves open as you approach.

I leave with what might be more questions than I came with

**End of tapescript from visit: Economic growth/Logistics**



Anyway, Diesel engines can be run on vegetable oil for example. Large lorries can be driven on the gravel road.

Once the area is built you can use the other systems. You have the canal, which is very efficient as well.

What about daily logistics? This is what the barges on the canal are for. The shops come to you. Clothes and shoes? You pick up what you need from the barges. Food is grown everywhere so you just go and get it. Small quantities for everything seems to be the rule but I have never really understood why. I wonder if there is not some secret of logistics here I am missing.

If you remove roads and do not transport people you reduce transport consumption drastically. So then what you have is left to transport is household goods and larger stuff via the pipeline system. You can even get a pallet delivery with a lot of household stuff if you need to stock up in bulk.

Before I leave, I am invited to ride around the system in the inspection capsule. It works just as I imagined even felt a bit like the ghost train at the funfair. In the background you could hear the “thud thud” of the cylinder propulsion system almost like

## Reflections Economic growth/Logistics

What I liked ... an economical, effective form of transport logistics

What surprised me... the propulsion system. And the re-thinking of product and manufacturing!

What can be used immediately... maybe this sort of thing exists already. Investigate. The re-thinking of manufacturing might contain an element of a business idea, but it is close to the way Dell works today. And Ikea.

The system would remove the need for roads in a city and allow high population density in comfort.

## Further questions.

Still not resolved the possession/money/work equation!