Technology forecasting for strategic decision making - An Introduction
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Lecture 29
System function - What's function 1 Energy for cooking

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Hello and welcome to the technology forecasting for strategic decision making. So, this is a bonus section on technology development itself. Here I am going to talk about something that you see right behind me, that is the, that is a gas meter. It is a pipe gas, and it measures the pipe gas flow. That is the technology we are going to discuss today; is the energy pipe gas section. I will talk about it.

So, gas or energy in a broader sense is actually the lifeline of many homes, particularly here in India, we have looked at, I remember when in my childhood days, we used to have gas stove which was powered by kerosene, so it was energized by kerosene, you had to, I remember my mother used to you know pump, use a pump, hand pump, pumping it many times and then you switch on the flame and that was how the process was.

So, I talked to my grandma to find out what she used when she was young and she lived in Mumbai or Bombay as it was called back then, she told me a strange little story. So, what she told me was that they did have gas also at the time, so this is even before the kerosene days, of course, geographically I am talking about two different locations, my mother, mother's kerosene stove was in southern India whereas this is a metro city that my grandma lived in and she was describing her younger days.

They had this piped gas as well. So, this is probably I am guessing or 50-60s maybe I do not know, maybe 60-70s let us assume. In the 1960s-1970s, there was piped gas given to homes in India in the metro of Bombay or Mumbai as it is called these days and pipe gas used to be supplied. It was by a company and then they stopped. I guess due to poor adoption or whatever reason, but piped gas used to be there. And then we moved to this kerosene sort of hand pump, hand crank sort of mechanism. So, that was the next step. And this is in urban locations in metro.

After that came the bottled gas or cylinder gas which was the next logical evolution in terms of the energy itself. So, that was interesting that we started off with pipe gas, went back to kerosene; so gas to liquid and from liquid again back to gas, but this time it is bottled in a form of the cylinder and then that ruled the roost for quite a while. I would think of at least 20 years we have had you know cylinder.

Even today in India, I would say if 1 is to 1 or even more towards the bottled gas consumers in the urban locations use bottled gas or cylinder gas as a source of energy for cooking. I am primarily talking about for cooking and then these days like the one you saw at the start of the video is the piped gas and that seems to be invoked as more companies, more and more companies in India are offering pipe gas.

In fact, some society, some apartment complexes have started offering a pipe gas but using bottled cylinders outside for safe, primarily for safety reasons, they kept it outside the building in a sort of collection and then collect gas from there and supply it to homes as well. I have heard of these as well.

But the most popular two options being one bottled and two is piped and so what is interesting for me in this example was the fact that we started off with the pipe gas, and then went back to kerosene and then back to bottled gas and way back to actually way back to pipe gas now. So, this is sort of the urban energy landscape.

Whereas in, I would imagine in a village setting, I have seen it myself. I have seen my other grandparents, this is my maternal grandparent who was in Bombay. The other paternal grandparents used to have a firewood sort of arrangement for a long time. They used to have a firewood with what is called a “chulha”, chulha or clay, earthen, what do you call it a machine if you will, so there you put in your firewood and you let it burn, after a while you get a knack of how to burn it and then you keep your vessels, utensils on top and then you do your cooking.

That was there for a while in a village setting and I was showing Professor Dmitry some examples of how that has evolved also because there is a lot of smoke coming out of this and it is a serious health hazard. It is one of the reasons why the focus has been to make it smokeless. So, several companies have involved in giving smokeless solutions to this chulha or a firewood burning mechanism.

So, fire pit in some cases and that is always being one of the pain points for evolution of the barriers to stop the evolution of this fire pit or chulha. Many companies came out with smokeless solutions, one of them was an interesting one where you could even charge your mobile phone using an USB, using a USB port on this particular chulha arrangement that is pretty interesting.

Now, so it looks like there are two systems here which have differentially evolved. One of them is the, the whole chulha arrangement which is for I do not know centuries been in that design and here is another technology which is evolved in the recent past which is evolved and now inventors have added that because the you consumers want a quick solution to charging their phones and so this is a very very interesting one.

So, what is going to be the future of that? So, it is always from solid, we move to liquid is one of the trends of evolution according to Triz, so we will see either if this evolutionary step has been there for too long you would see that it skips the whole liquid and goes on to gas and then to field or it could be that liquid is the next generation for the village setting. So, it is interesting, this how it has evolved just to highlight that there is a interesting case also.

So, energy is something that I you can also recall your memory on how it was, how it is right now and what is it going to be in the future. You can include microwaves, you can include ovens, microwave is also a source of energy plus utensil itself. So, you can look at it and see how it has evolved. So, if you find something interesting you want to describe use the discussion forum to let us know. Thank you, see you in the next module. This is the bonus feature. I thought it is a pretty interesting example to cover. See you, tata.