

**Innovation by Design**  
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**Module - 03**  
**Start of section 2**  
**Lecture – 14**  
**The basic need: Clean drinking water**

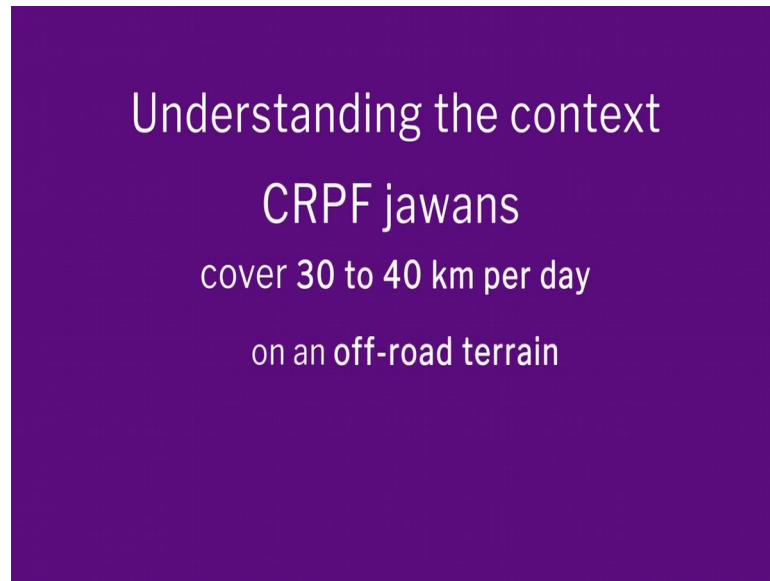
So, let us now you know look at our, you know case study today. And the context is critical here because its CRPF jawans who are actually going on a long operation into deep forests and they are supposed to filter available water from nalas or from water bodies or from the rain and drink that water. So, what is this whole story? We will go one by one and see how the context addressed every aspect of the design and innovation journey. We at IIT Bombay, have this centre for excellence in internal security.

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This was set up by Government of India and around 10 professors who were actually you know roped in, into this centre to work for technologies for the armed forces. We have so much of technologies strength over here and so, this centre is supposed to bridge this gap. My colleague from aeronautical Professor Hemendra Arya went for this trip.

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And he came back and said Professor Chakravarthy this was very intriguing to watch the type of hardships our jawans face when they are in the field and we have to do something for them you know. So, let me just quickly take you to the video of a Professor Arya.

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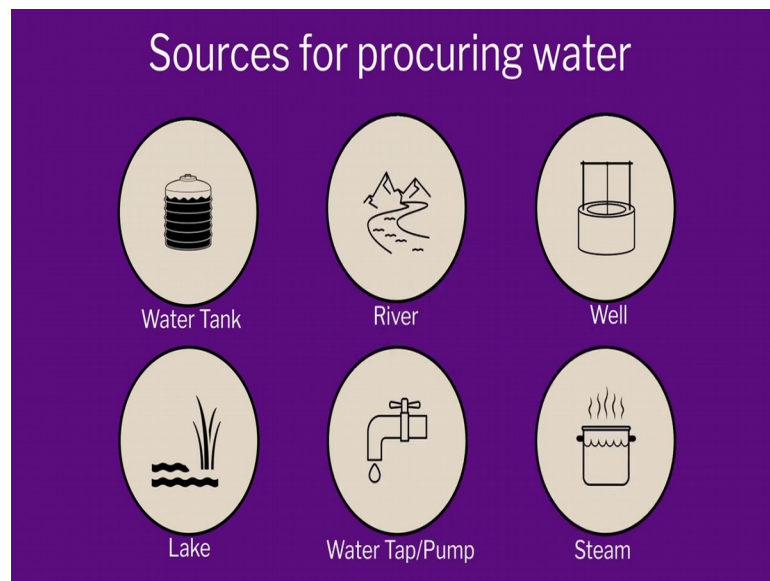


I am core faculty in the centre which deals with the internal security in this regard some CRPF officers visited and they gave their requirements for various issues which are related to internal security. They explained me about the need for a water bottle which can help them in having a clean water when they are in operation and typically they have

to carry around 7-8 liters of water. So, keeping this in view I asked them what are their requirements?

So, you just look at the cost coming in Professor Arya's tone? They are you know starving. They are starving for water when they are in long operations sometimes the operations last more than the durations which they planned for.

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So, they have to look for local water sources, they have to you know drink those water.

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So, this is like we get a lot of these interesting insights when you talk to the users. And the commandant officer he said that I needed to take these professors to the remotest areas where there is the most hostile environmental factors.

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**TARGET USERS:**  
CRPF jawans  
camping at remote places  
for their missions

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Because in design innovation remember when you do your you know context and cause and your data collection you have to look at the worst condition for your study if you look at the good conditions it is not going to get good ideas and good designs. So, they took us to the very very tough situations remote operations as we say.