

# **Sustainable cooling & global warming: stakeholder voices from India**

## **Talanoa Dialogue Questions**

The following inputs are provided specifically for the Talanoa Dialogue. Nine interviews were carried out (see list below of stakeholders) along with desk research by first year MBA students of Xavier Institute of Management (XIMB), at Xavier University, India. The class was led by Prof. Subhasis Ray in collaboration with Dr Jenny Lieu within the framework of the TRANSrisk project which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 642260.

### **Stakeholders list contacted:**

End-users: 3 university students, 1 physics teacher, 1 security guard

Electronic retailer: 1 sales person, 1 owner

AC technology provider: 1

International organisation expert: 1

**Secondary/desk research:** Aditi Sharma

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### **Question 3 - How do we get there?**

- a) Ways in which the UN Climate Change process can help you achieve your vision and goals, and how your actions can help in expediting sustainable transitions to climate neutral societies

### **Promoting awareness and education on climate change and global warming**

Global warming and climate change are not currently considered as common knowledge throughout India. With the rise of the educated middle-class families in India, the demand for AC and Refrigerator has increase and they are making purchasing decisions based on energy efficiency labels. However, awareness of energy efficiency and its role in sustainable future should be further promoted to the wider population including lower income households.

The UN climate process can support the sharing of best practise through setting up collaborative platforms to share best practices across countries and regions to avoid reinventing the wheel. These lesson learning opportunities can occur through existing platforms such as the annual COP meetings, which draws in a wide range of industry, societal, government actors.

Dedicated funds should be set aside and targeted at lower income households. Programmes that consider the varied cultural practices and norms should be carefully designed with local communities to raise awareness of the socio, economic and environmental benefits of more energy efficient behaviours and technologies.

## **Promote climate justice**

As a lower middle income country, the use of AC and refrigerator is not common throughout India. All segments of end users will be affected by increased temperature from lower income households to wealthy households. There will especially be a need for refrigeration for food storage. For the poor and lower middle class, the demand for coolers and fans will increase compared to RACs. This is due to the fact that RACs have higher electricity consumption and may require monthly maintenance. While there is a strong emphasis to accommodate end-users that can afford ACs and refrigeration, there is a large segment of the population that do not have access to the technologies. These are often the poor and marginalised populations and those who are most vulnerable to changes in the climate. The UN can place more emphasis on promoting climate justice by encouraging the development and implementation of concrete measures and actions that provide support for the most vulnerable.

## **Promoting low carbon technologies to support adaptation and mitigation**

The demand for cooling products has increased over the years due to the rise in temperature and income of people, leading to increased sales of up to 20-30% according to an electronic retailer sales person. There has been a tremendous growth for the demand for refrigerators. There also has been increase in the number of cold storages and warehouses to store agricultural produce under the National Food Security mission. Given the current trends, the future of the sector will continue to increase to meet the end-user needs. The sector can profit from providing a technology to support adaptation in an increasingly hot climate while a promoting climate mitigation through more energy efficient and ozone friendly ACs.

Energy efficiency technology helps AC suppliers to attract more customers who are now buying products based on energy ratings and cost efficiency. Therefore, we suggest that the UN climate change process can promote synergies to develop innovation clusters to support technological development for energy efficient technologies for AC and food cooling technologies, which will significantly impact lower incomer countries. Additionally, on the demand side, the UN can continue to encourage stricter norms to promote sustainable technologies. These pressures will likely lead to increases in innovation and advancement of new generation eco-smart cooling appliances.

- b) Concrete solutions that have been realized while implementing your commitments, including lessons learnt from success stories and challenges, and case studies that are in line with the 1.5/2 degrees' goal and can support the Parties in achieving their NDC goals, enable higher ambition and inspire engagement of other non-state actors

India is a very diverse country with a wide range of needs depending on the socio-economic condition of each household.

*Educated, middle-class households* have the purchasing power to choose the higher cost energy efficient AC and refrigerators. According to a electronic retail owner interviewed who sells ACs, customers are willing to pay up to 50% more if the AC has a more energy efficient rating. The energy efficient standards have provided a tangible indicator for end-users to make better energy efficient decisions; thus, for this segment of the end-user market, cost is not a barrier. The growing

middle class also recognises the need for ‘sustainable cooling’ - that is meeting the cooling needs of the present generation without sacrificing the needs of the future generations. But they are also apprehensive about the future of their children within the next 15 -20 years and the consequences of global warming due to ‘addiction’ to AC. There are also concerns about the dependency on ACs, as those who are accustomed to temperature-controlled surroundings will find it very difficult spend time outdoors.

A teacher interviewed, mentioned that parents are suggesting that schools should have ACs in classroom so that students would attend their class more regularly. Students will (have already) become dependent on ACs in their homes, cars, and schools. The heavy reliance on controlled indoor temperature and rising outdoor temperature will likely reduce the resilience to adapt to a changing climate. Additionally, the rise in the use of ACs is not only linked to temperature increases, even though ACs were sold more in summer, as there has been significant rise in sales of ACs during rainy season due to rise in humidity. The challenge is to balance adaptation actions due to changes in the climate (e.g. increased temperature and humidity), such as providing reasonable indoor comfort while mitigating climate change at the same time. These two goals tend to contradict and there is a strong dependency for technological innovations to significantly reduce environmental impact.

*Lower income households* cannot afford ACs depend on other low-tech measures to adapt to climate change. One stakeholder, a security guard, was not consciously aware of climate change but was aware that temperatures are increasing over the years. The security guard represent the working poor who must find low cost means to adapt. In the hot summer, wet towels are placed on the head for heat relief and individuals must constantly have access to water and remain hydrated. Some homes are built with asbestos roof made with thick layers of straws bundles that prevent the heat from penetrating through and help keeps the home cooler. While these low-tech measures bring some relief from increasing temperatures, lower-income households wish to purchase ACs for their families but do not have the financial means. They are not aware of government policies to promote energy efficiency and typically would rely on their earnings and savings to purchase AC and/or refrigerators. Lower income households are financially sensitive to increased electricity consumed required for an AC and would use AC for short periods in hot weather. Additionally, the preference is to first purchase refrigerators before purchasing ACs. Thus the challenge remains to provide lower income household with the financial support needed to adjust to increasing temperature which may also be accompanied with increased humidity, which is more difficult to adapt to without technology.

- c) Collaboration models with other stakeholders and, in particular, between non-Party stakeholders, national governments and the UN Climate Change process that have been successful in helping you, or can help you, achieve your commitments

### **Industry compliance and collaboration**

According to our interviews, some retail shops that supply ACs are very pessimistic about the feasibility of mainstreaming sustainable coolant in near future. While manufacturers companies launch newer more energy efficient models, they do not discontinue their older models that have higher GWP, and consequently, customers purchase the cheaper older models. Thus, the government must work together with manufactures to ensure the promotion of low carbon

technologies. Additionally, government monitoring and enforcement is important to ensure that manufacturers comply to the (inter)national regulations (see policy level sector for further details).

There is also a large scope for collaboration with cooling industries for government infrastructure projects including cold storage. Currently a large proportion of the food produced is wasted due to lack of proper storage. Coordinated efforts to improve food storage with low carbon technologies can help to build resilience (e.g. ensure proper supply of food under drought conditions). Additionally, if these storage technologies are supplied by clean electricity (e.g. supplied through renewable energy electricity), the operation of the infrastructure can also be sustainable.

### **Raising visibility for energy efficiency**

Many societal and business actors stressed the need to raise awareness on climate change in India. Some actors suggested collaborations with print and digital media to help raise awareness. There was a specific emphasis to properly educate the younger generation on the challenges of climate change and their potential contribution to mitigating climate change.

There also needs to be proper education for end-users to purchase more energy efficient AC model that will ultimately lead to cost savings in the long run. The energy efficiency rating needs to be visible for customers and sufficient information provided to compare different models. Retail shops can contribute to raising awareness by helping customers to understand the difference between energy efficient appliances and older inefficient appliance.

There is also a potential (and need) to set up a separate fund with the government to empower sales people in rural areas of India by providing them inhouse training and knowledge regarding changes in technology and to equip people with skillset to increase awareness among the rural population.

The increased use of smart phones also provides opportunities to educate end-users in both urban and rural areas. For instance, a dynamic app can help calculate the savings of electricity bills as a result of the appliances star ratings and electricity rates. The energy savings can then be marketed along the AC products.

### **Leveraging knowledge synergies and skills with higher education institutions**

The government could also collaborate with start-ups and entrepreneurs working on this field to promote effective products and further help them in research. The could help boost the economy and create future employment. These collaborations with start-ups can occur through IITs (Indian Institutes of Technology), which can provide support for research and development to encourage innovation in energy saving technologies. Business schools can also collaborate with IITs to support market innovations, pushing technology forward to the market by promoting the uptake of energy efficient technologies and changes in behaviour. Behavioural change insights and implementation strategies can also be supported by other disciplines in universities including psychology and sociology experts.

- d) Opportunities to further scale up action and means to address barriers that can enable even further action by non-Party stakeholders based on the actions you have taken to implement your commitments.

### **Policy levers**

Although the government has launched several regulations regarding sustainable cooling, the population at large, are not aware of the regulations due to a lack of awareness and communication. Thus, an education and awareness raising programme is required to communicate policy goals. Furthermore, manufacturers and government agencies often overlook existing regulations, again due to the lack of awareness and of proper implementation and enforcement of existing rule. Government agencies mostly focus on price while considering tenders for cooling appliances rather than considering energy efficiency ratings and savings potential. Thus, despite good intentions, policies need to be properly monitored and enforced by an independent watch dog. There should also be consequences for non-compliance including penalties.

Most lower income groups used second hand appliances. There should be some incentive of exchange programme where the companies can take in older appliance and retrofit the appliance to improve energy efficiency and to re-sell to lower income households through a different channel. Business can then benefit from second hand products and incentive programmes can help to streamline this decentralised business.

### **Public and private financing models**

Financing such projects in public and private domain will be very important in India. Public financing will play a key role in the process. For example, international public finance sources, including multilateral and bilateral development banks and climate funds such as World Bank Group for energy financing, including IBRD (International Bank for Reconstruction and Development), IDA (International Development Association), IFC (International Finance Corporation) and MIGA (Multilateral Investment Guarantee Agency) guarantees, has exceeded 49 USD billion since 2010<sup>1</sup>. Targeted energy efficiency measures in the AC sector are part of larger energy efficiency programmes, for instance, loans and grants by AFD (French Development Agency) and KfW (Kreditanstalt für Wiederaufbau) agencies for energy efficiency are mainly focused on the industrial and building sectors.

There are private financing models as well for the UN climate projects:

- Public private partnerships, involving dedicated credit lines, risk-sharing facilities or Energy Saving Performance Contracts that target energy efficiency market barriers.
- Carbon financing can help unlock various private investments at a large scale.
- Supporting public project development, commercial financing, and the development and promotion of innovative finance mechanisms (e.g. climate bonds).

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<sup>1</sup> World Bank (2018). “Projects & Programs”. Available at: <http://www.worldbank.org/en/topic/energy/projects>