Sustainability and Radio

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Outline of talk

- What is Environmental sustainability
- Main Environmental impacts of broadcast technology
- Radio and its environmental impacts
- What can we do – first steps

What do we mean by Sustainable?

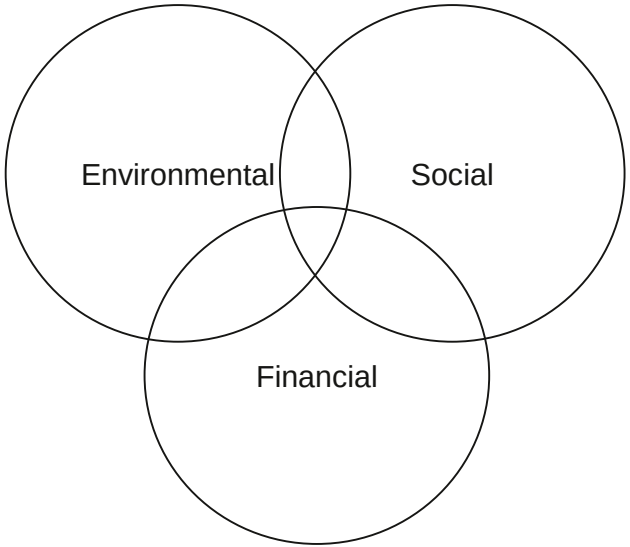
- Dictionary definition: **“Capable of being maintained or continued at a certain rate or level.”**

- Environmentally sustainable: **“ the degree to which a process or enterprise is able to be maintained or continued while avoiding the long-term depletion of natural resources”**

- The most frequently quoted definition is from the Brundtland Report: **"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.**

Sustainability

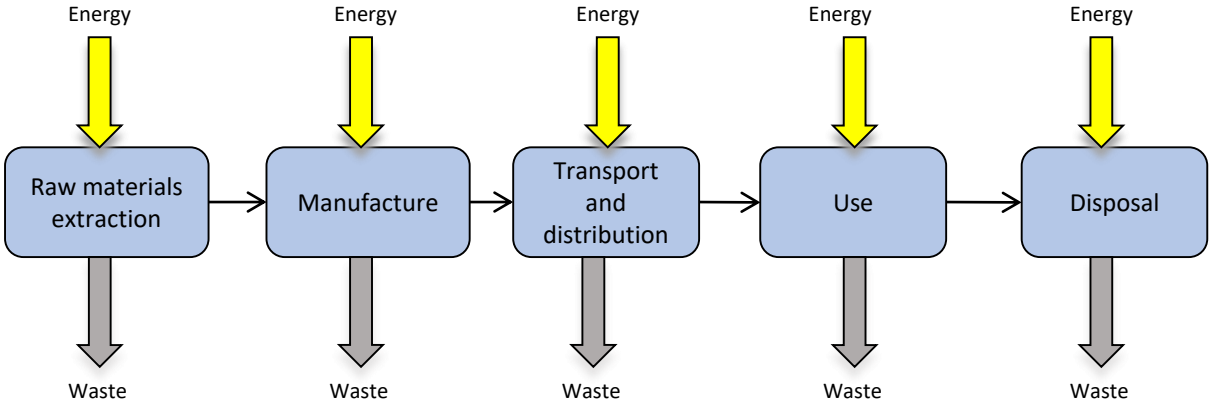
Intersection of 3 aspects – environmental, financial and social responsibility



In public service broadcasting, we are naturally focused on creating a positive social impact and being financially sustainable.

BBC's Sustainability Strategy: Greener Broadcasting

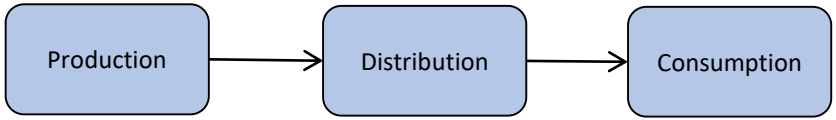
Main environmental impacts of technology



- **Direct (negative) impacts:**
- Energy use
- Greenhouse gas emissions (carbon)
- Electronic waste
- Materials use
- Materials toxicity

Radio

- Lifecycle of radio service



- Move from analogue to digital radio has reduced power consumption of transmission.
- Initially, there were concerns that these savings were offset by increased power consumption of Digital radio receivers
- Modern digital receivers are more energy efficient

IP distribution

- My research has been focused on television services so far and we have found that set-top boxes and television sets are the largest power consumers currently. For IP distribution, low power devices such as mobile phones and tablets are often used, and so the home router and network are much more significant.
- Radio could be very different as transmitter power consumption is likely to be the largest component for broadcasting.

- Energy intensity (energy/bit) of Internet is falling – will that continue in future?
- The access network is important. IP distribution over the mobile network uses a lot more energy per bit than over fixed line.

Key actions

- Understand your own system – make measurements and get data from your partners / suppliers
- Design – make your system sustainable by design
- Use your buying power – sustainable procurement
- Switch to renewable energy

Example of design improvement for sustainability

- AMC, or AM companding, is currently used on all high-power BBC LF and MF transmitters to reduce electricity consumption
- At present, companding of 3 dB is applied
- Investigated effects of 6bB of AM companding on received signal quality, in order improving the efficiency of medium-wave radio transmitters
- Result shows Financial savings to the BBC of £1million over 5 years

- Full details at "AM Companding: Reducing the Power Consumption of LF and MF Transmitters" by Ranulph Poole.
  https://www.bbc.co.uk/rd/publications/whitepaper333

Thank you

- Questions?
- Contact me at Jigna.Chandaria@bbc.co.uk