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Engineering and Physical Sciences  
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**ON POVERTY**  
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**EPSRC is investing in engineering and physical sciences research that will have a positive impact on people's lives around the world – from dealing with earthquakes, to access to digital communications.**

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### IMPACT! ON AFRICAN FARMING

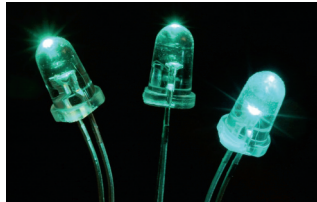
In some of the most impoverished parts of Africa, millions of people rely on optimising their harvests in order to feed their families. A new EPSRC-funded digital sensor device aimed at maximising crop yields could provide farmers with the vital information needed to optimise their produce. Developed by engineers at the University of Leeds, the sensor device gathers data on air temperature, humidity, air pressure, soil moisture and light – information crucial to making key agricultural decisions about planting, irrigation, pest and disease control, and harvesting. The Leeds team has been working with two Kenyan villages to develop the technology as part of EPSRC's Village E-Science for Life (VESEL) project, a collaboration of key research groups in the UK and Kenya.



➤ A digital sensor device to help African farmers

### IMPACT! ON WATER PROVISIONS IN DEVELOPING COUNTRIES

With millions of people dying from a basic lack of clean drinking water every year, a solution is desperately needed. But now, the development of a new type of Gallium Nitride (GaN) lighting, which has the power to turn bacteria infested water into clean safe drinking water, could potentially save millions of lives. Supported by EPSRC, scientists at the Cambridge Centre for Gallium Nitride are at the forefront of unlocking the health-improving potential of this man-made material. By simply fitting a GaN LED inside a water pipe it will instantly eradicate diseases, mosquito larvae and other contaminants.



➤ Long-lasting LED lighting that instantly eradicates diseases

### IMPACT! ON LEARNING IN RURAL COMMUNITIES

In communities such as Budikote in rural India, textual literacy rates are about 50 per cent and computer literacy is even lower, so conventional information sharing over the internet using written text is simply not appropriate. In response to this, the StoryBank project, funded by the EPSRC, set out to develop a system that would allow people in rural communities to easily create and share information in audiovisual form. The system employs cameraphones running software based on a user interface of picture icons rather than text menus. The resulting 'audiophoto narratives' are digital stories that play like video clips on the phone.

➤ Digital technologies that aid learning



### IMPACT! ON MAJOR EARTHQUAKE ZONES

Some of the poorest areas of the world live with the constant threat of earthquakes, but thanks to research supported by EPSRC, earthquake engineers are building a safer future for communities affected by devastation. Research missions to earthquake zones are vital to progressing engineering techniques, improving building performance, updating building codes and mitigating the effects of future quakes. Supported by EPSRC, a team at UCL is leading the Earthquake and People Interaction Centre (Epicentre), pioneering a new approach to earthquake engineering and developing new tools that will help coordinate and improve the amount of vital information gathered on the front line.

➤ Reducing the devastation of earthquakes

### IMPACT! ON ENERGY IN RURAL COMMUNITIES

A low-cost generator with the potential to transform lives in the world's poorest communities is now being tested across the UK and in Nepal. Funded by EPSRC and led by the University of Nottingham, the Score project is developing a biomass burning cooking stove, which also converts heat into acoustic energy then into electricity. The development of the biomass-powered generator hopes to provide an affordable, versatile domestic appliance to address the energy needs of rural communities in Africa and Asia, where access to power is extremely limited.



➤ The target is to generate an hours use per kilogram of fuel

### IMPACT! ON UTILITIES IN INDIA

There are around 800 million people living in rural parts of India who do not have access to clean water, sustainable electricity or modern communication technologies. To tackle these issues, EPSRC-supported research collaborations include a consortium of British and Indian universities, institutions and companies that plan to establish the first India-UK Advanced Technology Centre of Excellence. The centre will develop wireless internet across rural communities and wireless grid networks for remote management of utilities, water quality detection and flood monitoring.

➤ Making a connection across rural communities