



जेठो इरुगे शुकुणुवेठर  
Sri Adichunchanagiri Shikshana Trust [R]  
Adichunchanagiri Institute of Medical Sciences  
Department of Community Medicine



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# Cohort

*Biannual Departmental Newsletter*

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## **EDITORIAL**

Dear Readers,

I am very much pleased to bring out our newsletter "COHORT" giving useful information on the subject and the department.

I would like to express our gratitude to the principal Dr M G Shivaramu for inspiring us with his encouragement. With a wholehearted cooperation and support, it is my humble endeavor to strengthen community medicine at all levels. In my opinion, we should work as an academic body to update the faculty members' knowledge and being community medicine people, to fulfill social responsibilities.

This year Sri Adichunchanagiri matt organised Jnana Vignana Tantragnana Mela on 20th and 21st February 2017 and our department took an active participation in the mela by displaying public health activities. This was well appreciated by the students and the public, who visited the stall in large numbers and judges awarded 1st prize to our department.

Our department trained the students for the state level RNTCP quiz in which they secured fourth place as a part of World TB Day celebrations. World health day was observed in collaboration with the department of psychiatry with the theme on depression on 7th April 2017. Guest lecture was conducted on 17.5.2017 by Dr Sumanth, Associate professor on "Role of medical students in prevention and control of Non communicable diseases for the undergraduate students.

This issue of the "Cohort", our biannual news letter starts of with a brief report on RNTCP quiz and goes on to introduce you, the reader trough the time line of World Health Day on depression. Recent topics like Climate change and health, Universal health coverage and polio eradication end game and a note on Sustainable developmental goals and E waste will enhance your knowledge.

I whole heartedly thank our beloved and dynamic principal for his constant support and encouragement and all the department faculty for their great effort contributing to the success and also for all the department activities.

**Dr Basavaraj M Ingalgeri**  
Professor and Head

## REPORT ON WORLD TUBERCULOSIS DAY CELEBRATION

On the occasion of World TB Day 2017, on 24th March, Department of Community Medicine organised various activities in the college for undergraduates in association with State TB Task Force and DTO, Mandya district.

Preliminary round was conducted initially and top 6 teams qualified for final round at college level. State level RNTCP Quiz - College Round was started by an introduction regarding Tuberculosis, followed by Quiz. Dr Shivaramu M G, Principal, AIMS spoke on the occasion with regards to the problem of TB and challenges.

Top team from the qualifying round got selected for the final round and secured 4th place, which was held at BMCRI, Bengaluru.



## **REPORT OF 'WORLD HEALTH DAY – 2017'**

### **OBSERVATION AT THE INSTITUTE**

On the occasion of 'World Health Day-2017' the departments of Psychiatry and Community Medicine of AIMS had jointly organized an awareness program and intercollegiate painting competition on 7th April, 2017. The painting competition for undergraduate medical students was held with the theme being "Depression-Let's talk". The awareness program was carried out by display of posters related to depression and organizing lectures about the same.

The painting competition and display of posters started at 10:00 am at the demonstration room, community medicine department and quadrangle of college respectively. Enthusiastic students from 6th term presented creative posters which were strategically placed and open for all the students, teaching and non-teaching faculty for whole of the day. Students also actively participated in painting competition.

The lecture series targeted for all the students and staff were part of a formal program which began at 11:30 am. The program started with an invocation song followed by welcome speech by Dr.Vinay.H.R, senior resident, department of psychiatry. The formal inauguration of the program through lighting of the lamp was done by dignitaries on the stage which included in-charge principal, Dr.Venkatesha.D (Professor & HOD, Department of Microbiology), Medical Superintendent, Dr.Manohar.T.M. (Professor in surgery) and both the speakers of the day. Addressing the gathering, Dr.Manohar.T.M, stressed on the importance of creating awareness regarding mental health issues which did not happen in the earlier times.

The first lecture was by Dr. V.A.P. Ghorpade, Professor & HOD, department of psychiatry. He briefed on the current scenario of mental health in world and India. He also gave the statistics of prevalence of depression and rate of suicides amongst the youth. The second lecture was by Dr.Basavaraju.M. Ingalgeri, Professor & HOD, department of community medicine. He initiated the talk with mentioning importance of celebrating the world health day every year. His lecture summarized the elements of preventive psychiatry and universal, selected and targeted interventions for prevention of depression at all the levels.

The lecture series was followed by prize distribution for the winners of painting competition. Ms. Prithvi.S of 6th term, AIMS won 1st prize while Ms. Anagha Menon of 4th term, AIMS and Dr. Jnana Prabha, Intern from VIMS,

Bangalore won 2nd and 3rd prizes respectively. The program ended with vote of thanks by Dr. Shashikantha.S.K, assistant professor, department of community medicine.



Dr Raghavendra S K  
Assistant Professor.

## GUEST LECTURE ON PREVENTION OF NON-COMMUNICABLE DISEASES

Guest lecture was organised by Dept. of Community Medicine for undergraduate students for one and half an hour in lecture hall 1 on topic "Role of Medical students in prevention and control of Non communicable diseases" on 17th May 2017. Lecture was given by Dr Sumanth, Associate professor, Mysore Medical College was followed by open discussion.



## CLIMATE CHANGE AND HEALTH

### Key facts

- Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter.
  - Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress.
  - The direct damage costs to health (i.e. excluding costs in health-determining sectors such as agriculture and water and sanitation), is estimated to be between US\$ 2-4 billion/year by 2030.
  - Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond.
  - Reducing emissions of greenhouse gases through better transport, food and energy-use choices can result in improved health, particularly through reduced air pollution.
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### Climate change

Over the last 50 years, human activities – particularly the burning of fossil fuels – have released sufficient quantities of carbon dioxide and other greenhouse gases to trap additional heat in the lower atmosphere and affect the global climate.

In the last 130 years, the world has warmed by approximately 0.85°C. Each of the last 3 decades has been successively warmer than any preceding decade since 1850(1).

Sea levels are rising, glaciers are melting and precipitation patterns are changing. Extreme weather events are becoming more intense and frequent.

### What is the impact of climate change on health?

Although global warming may bring some localized benefits, such as fewer winter deaths in temperate climates and increased food production in certain areas, the overall health effects of a changing climate are likely to be overwhelmingly negative. Climate change affects social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter.

### Extreme heat

Extreme high air temperatures contribute directly to deaths from cardiovascular and respiratory disease, particularly among elderly people. In the

heat wave of summer 2003 in Europe for example, more than 70 000 excess deaths were recorded(2).

High temperatures also raise the levels of ozone and other pollutants in the air that exacerbate cardiovascular and respiratory disease.

Pollen and other aeroallergen levels are also higher in extreme heat. These can trigger asthma, which affects around 300 million people. Ongoing temperature increases are expected to increase this burden.

### **Natural disasters and variable rainfall patterns**

Globally, the number of reported weather-related natural disasters has more than tripled since the 1960s. Every year, these disasters result in over 60 000 deaths, mainly in developing countries. Rising sea levels and increasingly extreme weather events will destroy homes, medical facilities and other essential services. More than half of the world's population lives within 60 km of the sea. People may be forced to move, which in turn heightens the risk of a range of health effects, from mental disorders to communicable diseases.

Increasingly variable rainfall patterns are likely to affect the supply of fresh water. A lack of safe water can compromise hygiene and increase the risk of diarrhoeal disease, which kills over 500 000 children aged under 5 years, every year. In extreme cases, water scarcity leads to drought and famine. By the late 21st century, climate change is likely to increase the frequency and intensity of drought at regional and global scale(1).

Floods are also increasing in frequency and intensity, and the frequency and intensity of extreme precipitation is expected to continue to increase throughout the current century(1). Floods contaminate freshwater supplies, heighten the risk of water-borne diseases, and create breeding grounds for disease-carrying insects such as mosquitoes. They also cause drownings and physical injuries, damage homes and disrupt the supply of medical and health services.

Rising temperatures and variable precipitation are likely to decrease the production of staple foods in many of the poorest regions. This will increase the prevalence of malnutrition and undernutrition, which currently cause 3.1 million deaths every year.

### **Patterns of infection**

Climatic conditions strongly affect water-borne diseases and diseases transmitted through insects, snails or other cold blooded animals. Changes in climate are likely to lengthen the transmission seasons of important vector-borne diseases and to alter their geographic range. For example, climate change is projected to

widen significantly the area of China where the snail-borne disease schistosomiasis occurs(3).

Malaria is strongly influenced by climate. Transmitted by *Anopheles* mosquitoes, malaria kills over 400 000 people every year – mainly African children under 5 years old. The *Aedes* mosquito vector of dengue is also highly sensitive to climate conditions, and studies suggest that climate change is likely to continue to increase exposure to dengue.

### **Measuring the health effects**

Measuring the health effects from climate change can only be very approximate. Nevertheless, a WHO assessment, taking into account only a subset of the possible health impacts, and assuming continued economic growth and health progress, concluded that climate change is expected to cause approximately 250 000 additional deaths per year between 2030 and 2050; 38 000 due to heat exposure in elderly people, 48 000 due to diarrhoea, 60 000 due to malaria, and 95 000 due to childhood undernutrition.

### **Who is at risk?**

All populations will be affected by climate change, but some are more vulnerable than others. People living in small island developing states and other coastal regions, megacities, and mountainous and polar regions are particularly vulnerable. Children – in particular, children living in poor countries – are among the most vulnerable to the resulting health risks and will be exposed longer to the health consequences. The health effects are also expected to be more severe for elderly people and people with infirmities or pre-existing medical conditions. Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond.

### **WHO response**

Many policies and individual choices have the potential to reduce greenhouse gas emissions and produce major health co-benefits. For example, cleaner energy systems, and promoting the safe use of public transportation and active movement – such as cycling or walking as alternatives to using private vehicles – could reduce carbon emissions, and cut the burden of household air pollution, which causes some 4.3 million deaths per year, and ambient air pollution, which causes about 3 million deaths every year.

In 2015, the WHO Executive Board endorsed a new work plan on climate change and health. This includes:

- **Partnerships:** to coordinate with partner agencies within the UN system, and ensure that health is properly represented in the climate change agenda.
- **Awareness raising:** to provide and disseminate information on the threats that climate change presents to human health, and opportunities to promote health while cutting carbon emissions.
- **Science and evidence:** to coordinate reviews of the scientific evidence on the links between climate change and health, and develop a global research agenda.
- **Support for implementation of the public health response to climate change:** to assist countries to build capacity to reduce health vulnerability to climate change, and promote health while reducing carbon emissions.

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**Dr Gagan S**

Assistant Professor

Department of Community Medicine

## **UNIVERSAL HEALTH COVERAGE (UHC)**

### **Key facts**

- All UN Member States have agreed to try to achieve universal health coverage (UHC) by 2030, as part of the Sustainable Development Goals.
- UHC provides access to quality essential health services; safe, effective, and affordable essential medicines and vaccines; and protection from financial risk.
- At least 400 million people globally lack access to one or more essential health services.
- Every year 100 million people are pushed into poverty and 150 million people suffer financial catastrophe because of out-of-pocket expenditure on health services.
- On average, about 32% of each country's health expenditure comes from out-of-pocket payments.
- Ensuring equitable access requires a transformation in how health services are funded, managed, and delivered so that services are centred around the needs of people and communities.
- More than 18 million additional health workers will be needed by 2030 to meet the health workforce requirements of the Sustainable Development Goals and UHC targets, with gaps concentrated in low- and lower-middle-income countries.
- Globally, two thirds (38 million) of 56 million deaths each year are still not registered.

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### **What is UHC?**

UHC means that all individuals and communities receive the health services they need without suffering financial hardship. It includes the full spectrum of essential, quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care.

UHC enables everyone to access the services that address the most important causes of disease and death, and ensures that the quality of those services is good enough to improve the health of the people who receive them.

Protecting people from the financial consequences of paying for health services out of their own pockets reduces the risk that people will be pushed into

poverty because unexpected illness requires them to use up their life savings, sell assets, or borrow – destroying their futures and often those of their children.

Achieving UHC is one of the targets the nations of the world set when adopting the Sustainable Development Goals in 2015. Countries that progress towards UHC will make progress towards the other health-related targets, and towards the other goals. Good health allows children to learn and adults to earn, helps people escape from poverty, and provides the basis for long-term economic development.

### **What UHC is not?**

There are many things that are not included in the scope of UHC:

- UHC does not mean free coverage for all possible health interventions, regardless of the cost, as no country can provide all services free of charge on a sustainable basis.
- UHC is not just about health financing. It encompasses all components of the health system: health service delivery systems, the health workforce, health facilities and communications networks, health technologies, information systems, quality assurance mechanisms, and governance and legislation.
- UHC is not only about ensuring a minimum package of health services, but also about ensuring a progressive expansion of coverage of health services and financial protection as more resources become available.
- UHC is not only about individual treatment services, but also includes population-based services such as public health campaigns, adding fluoride to water, controlling mosquito breeding grounds, and so on.
- UHC is comprised of much more than just health; taking steps towards UHC means steps towards equity, development priorities, and social inclusion and cohesion.

### **How can countries make progress towards UHC?**

Many countries are already making progress towards UHC. All countries can take actions to move more rapidly towards it, or to maintain the gains they have already made. In countries where health services have traditionally been accessible and affordable, governments are finding it increasingly difficult to respond to the ever-growing health needs of the populations and the increasing costs of health services.

Moving towards UHC requires strengthening health systems in all countries. Robust financing structures are key. When people have to pay most of the cost for health services out of their own pockets, the poor are often unable to obtain many of

the services they need, and even the rich may be exposed to financial hardship in the event of severe or long-term illness. Pooling funds from compulsory funding sources (such as mandatory insurance contributions) can spread the financial risks of illness across a population.

Improving health service coverage and health outcomes depends on the availability, accessibility, and capacity of health workers to deliver quality people-centred integrated care. Investments in the primary health care workforce is most needed and cost-effective. Good governance, sound systems of procurement and supply of medicines and health technologies and well-functioning health information systems are **other critical elements**.

UHC emphasizes not only *what* services are covered, but also *how* they are funded, managed, and delivered. A fundamental shift in service delivery is needed such that services are integrated and focused on the needs of people and communities. This includes reorienting health services to ensure that care is provided in the most appropriate setting, with the right balance between out- and in-patient care and strengthening the coordination of care. Health services, including traditional and complementary medicine services, organized around the comprehensive needs and expectations of people and communities will help empower them to take a more active role in their health and health system.

### **Can UHC be measured?**

Yes. Monitoring progress towards UHC should focus on 2 things:

- The proportion of a population that can access essential quality health services.
- The proportion of the population that spends a large amount of household income on health. Together with the World Bank, WHO has developed a framework to track the progress of UHC by monitoring both categories, taking into account both the overall level and the extent to which UHC is equitable, offering service coverage and financial protection to all people within a population, such as the poor or those living in remote rural areas.

WHO uses 16 essential health services in 4 categories as indicators of the level and equity of coverage in countries:

Reproductive, maternal, newborn and child health:

- family planning
- antenatal and delivery care
- full child immunization
- health-seeking behaviour for child illness.

Infectious diseases:

- tuberculosis treatment
- HIV antiretroviral treatment
- coverage of insecticide-treated bed nets for malaria prevention
- adequate sanitation.

Noncommunicable diseases:

- prevention and treatment of raised blood pressure
- prevention and treatment of raised blood glucose
- cervical cancer screening
- tobacco (non-)use.

Service capacity and access:

- basic hospital access
- health worker density
- access to essential medicines
- health security: compliance with the International Health Regulations.

Each country is unique, and each country may focus on different areas, or develop their own ways of measuring progress towards UHC. But there is also value in a global approach that uses standardized measures that are internationally recognised so that they are comparable across borders and over time.

**Dr Ramya M,**  
Assistant Professor

## **POLIO ERADICATION END GAME**

The Polio Eradication & Endgame Strategic Plan 2013-2018 is a comprehensive, long-term strategy that addresses what is needed to deliver a polio-free world by 2018. It was developed by the Global Polio Eradication Initiative (GPEI) in consultation with national health authorities, global health initiatives, scientific experts, donors and other stakeholders, in response to a directive of the World Health Assembly.

The plan addresses the eradication of all polio disease, whether caused by wild poliovirus or circulating vaccine-derived poliovirus, while planning for the backbone of the polio effort to be used for delivering other health services to the world's most vulnerable children.

### 3 areas of engagement

- Strengthening Routine Immunization
- Certification of South-East Asia Region as polio-free
- Polio end-game strategy

### **Certification of polio eradication**

- Certification is done for WHO Regions and not for individual countries.

#### **WHO Regions that have been certified polio free:**

- Americas: 20 August 1994
- Western Pacific: 29 October 2000
- Europe: 21 June 2002

#### **Certification of a region is considered only when**

All countries in the area demonstrate

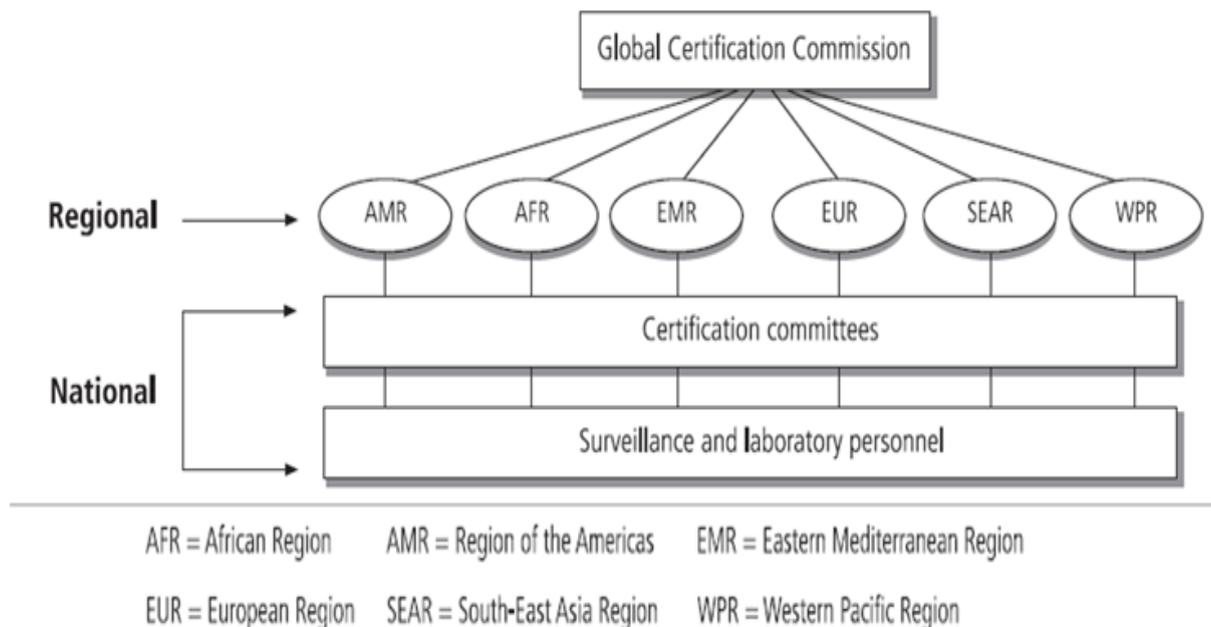
- the absence of wild poliovirus transmission for at least three consecutive years
- presence of certification standard surveillance
- global action plan for laboratory containment of wild poliovirus

#### **Regional Certification Commission for Poliomyelitis Eradication (RCCPE)**

- Appointed by Regional Directors
- Authority to certify polio eradication in the region
- Decision is taken based on
  - Opinion of national committees
  - Supporting evidence provided by national committees
  - Visits to countries to verify the data
  - Completeness and accuracy of data

- Certification of global polio eradication will be announced only after all regional commissions have certified their respective regions

**Groups involved in certification of polio eradication at global, regional, and country levels**



**National Certification Committee for Poliomyelitis Eradication (NCCPE)**

- Government established independent NCCPE in 1998
- Examine, assess and verify data collected by government
- Field visits to review evidence of interruption of poliovirus transmission in the country
- Independent judgment of polio status
- Present country report to RCCPE

**Certification standard surveillance**

- Non-polio AFP rate:  $\geq 2$  per 100,000 population aged less than 15 years annually
- Adequate stool specimens :  $\geq 80\%$
- All stool specimens tested for poliovirus at a WHO-accredited laboratory
- Additional Criteria
  - *Investigation of AFP cases within 48 hours of initial notification:  $\geq 80\%$*
  - *Timeliness of weekly AFP surveillance reports:  $\geq 80\%$*

**Laboratory containment of WPV**

To minimize the risk of reintroduction of WPV into the community from a laboratory.

WHO action plan comprises three phases:

- Phase 1: laboratory survey and inventory
- Phase 2: global certification: implement appropriate biosafety measures

- Phase 3: post global certification: more stringent, will be prepared when there is global strategy to stop OPV
- For regional certification evidence that phase 1 has been implemented

### **Polio Endgame Strategy**

- No WPV2 in India since 1999
- tOPV used in RI and during NIDs
- bOPV used in most SNIDs since Jan 2010
- Areas and populations with low routine immunization coverage
- All cVDPVs in India due to type 2 in setting of low immunity to type 2

### **Managing the risk of VDPVs**

- Preparing for the polio endgame
- A tOPV-bOPV switch globally
- Use of IPV in conjunction with OPV
- Eventual cessation of all OPV use globally at some point in the future
- Support research activities to generate evidence to guide decision making

### **tOPV-bOPV switch in India Considerations**

- Pre-switch increase in type 2 immunity
- Rapidly improve routine immunization coverage
- Use of IPV in conjunction with bOPV/tOPV to reduce risk of emergence and consequences of cVDPV
- Availability of vaccines
  - IPV availability for use in routine immunization
  - bOPV availability for routine immunization and SIAs
    - cVDPV type 2 circulation stopped everywhere & switch synchronised globally
    - Management of post-switch risks of type 2 VDPVs

### **Pre-switch boosting of type 2 immunity**

- Switch soon after tOPV NIDs
- Improve RI, particularly DTP3 and OPV3 coverage
- Adding a dose of IPV in RI for infants prior to switch

### **IPV introduction - Benefit/Dose/Route**

#### *Planned Research*

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- Compare immunogenicity against poliovirus types 1 and 3 by bOPV & tOPV given as part of routine EPI schedule
- Assess gain in immunity (booster effect) of a full dose or fractional dose of IPV when added to tOPV or bOPV at 14 weeks (DPT3 contact) in EPI schedule

- Assess operational feasibility of intra-dermal IPV fractional dose using BCG syringe

### **bOPV availability**

#### *Planned Research*

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- Generate data on immunogenicity and safety of additional bOPV products for potential licensing by national regulatory authority (DCGI) in India
- Demonstrate superiority of 2 doses of bOPV of different manufacturers over tOPV for seroconversion to types 1 and 3
- Additional options for bOPV supply to meet high vaccine requirement in India & globally – important specially for the endgame strategy

### **Post-switch VDPV type 2 risk management**

- Heightened surveillance to detect post-switch Sabin type 2 (not just VDPV type 2)
- Stockpile/Capacity to produce mOPV2 at short notice

### **Conclusion**

- India can be in a position to move ahead with polio endgame strategy.
- Careful planning and consideration of risks required before implementation.
- Lessons from tOPV-bOPV switch significant for subsequent withdrawal of all OPV from programme.

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**Dr Manuja LM**  
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## SUSTAINABLE DEVELOPMENT GOALS



The Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity.

These 17 Goals build on the successes of the Millennium Development Goals, while including new areas such as climate change, economic inequality, innovation, sustainable consumption, peace and justice, among other priorities. The goals are interconnected – often the key to success on one will involve tackling issues more commonly associated with another.

The SDGs work in the spirit of partnership and pragmatism to make the right choices now to improve life, in a sustainable way, for future generations. They provide clear guidelines and targets for all countries to adopt in accordance with their own priorities and the environmental challenges of the world at large. The SDGs are an inclusive agenda. They tackle the root causes of poverty and unite us together to make a positive change for both people and planet. “Supporting the 2030 Agenda is a top priority for UNDP,” said UNDP Administrator Helen Clark. “The SDGs provide us with a common plan and agenda to tackle some of the pressing challenges facing our world such as poverty, climate change and conflict. UNDP has the experience and expertise

to drive progress and help support countries on the path to sustainable development.”

### **List of Goals**

Goal 1: No Poverty

Goal 2: Zero Hunger

Goal 3: Good Health and Well-being

Goal 4: Quality Education

Goal 5: Gender Equality

Goal 6: Clean Water and Sanitation

Goal 7: Affordable and Clean Energy

Goal 8: Decent Work and Economic Growth

Goal 9: Industry, Innovation and Infrastructure

Goal 10: Reduced Inequalities

Goal 11: Sustainable Cities and Communities

Goal 12: Responsible Consumption and Production

Goal 13: Climate Action

Goal 14: Life Below Water

Goal 15: Life on Land

Goal 16: Peace, Justice and Strong Institutions

Goal 17: Partnerships for the Goals

### **What is UNDP's role?**

The SDGs came into effect in January 2016, and they will continue guide UNDP policy and funding for the next 15 years. As the lead UN development agency, UNDP is uniquely placed to help implement the Goals through our work in some 170 countries and territories.

Our strategic plan focuses on key areas including poverty alleviation, democratic governance and peace building, climate change and disaster risk, and economic inequality. UNDP provides support to governments to integrate the SDGs into their national development plans and policies. This work is already underway, as we support many countries in accelerating progress already achieved under the Millennium Development Goals.

Our track record working across multiple goals provides us with a valuable experience and proven policy expertise to ensure we all reach the targets set out in the SDGs by 2030. But we cannot do this alone. Achieving the SDGs requires the partnership of governments, private sector, civil society and citizens alike to make sure we leave a better planet for future generations.

# SDG SCORECARD 2030 RESULTS



**Dr Vishwanath PG**  
Assistant professor  
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## **PUBLICATIONS BY STAFF & PG STUDENTS**

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## **E-Waste**

With innovative and new technologies and the globalization of the economy, today a whole range of electronic products are available and affordable to the people, changing their lifestyles significantly. New electronic products have become an integral part of our daily lives giving more comfort, security, easy & faster acquisition and exchange of information.

At the same time, these have led to manifold problems including the problem of massive amount of hazardous waste and other wastes generated from electronic products.

These hazardous and other wastes pose a great threat to the human health & environment.

### **What is e-waste?**

“Waste electronic or electrical equipment whole or in part, or rejects from their manufacturing or repair process, which are intended to be discarded ”.

### **Sources of e-waste:**

Large and small household electronic appliances, telecommunication, equipments, toys and sports equipments, medical monitoring and control devices.

### **Composition of E-Waste:**

Ferrous and non ferrous metals, barium, mercury, cadmium, plastics, wood, ceramics, rubber.

### **E-Waste burden:**

**Globally:** 20-50 MT of e-waste is generated each year. Guiyu, China is called as the E- Waste Capital of the World.

**India:** second largest producer in Asia, Fifth largest producer of e-waste in the World.

### **Impact of E-Waste on environment:**

Contamination of Ground water, soil pollution, air pollution.

### **Health hazards of E-Waste:**

Neurological disease, pneumonitis, erithism, minimata disease, liver and renal failure, haemolysis.

### **E-waste Management:**

Basic principles of e-waste management is reduce, reuse and recycle.

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