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REVA  
UNIVERSITY

Bengaluru, India



# Green and Environment Audit 2022

Rukmini Knowledge Park,  
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# GREEN AUDIT 2022



**REVA**  
UNIVERSITY  
Bengaluru, India

TOWARDS THE

SUSTAINABLE  
DEVELOPMENT **GOALS**



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Prepared by  
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## BACKGROUND

REVA University was established through a notification of Government of Karnataka Act No. 80 of 2012. Government of Karnataka declared REVA University located in Kattigenahalli, Yelahanka, Bangalore, Karnataka State as a private University established in Karnataka state under the Act no.80 of 2012. The activities of the University commenced in the academic year 2013-14. The University currently offers 24 Full-time Post Graduate Programs, 5 Part-time Post Graduate programs, 21 Graduate programs, several Certificate/ Diploma and Post graduate Diploma programs in Engineering, Architecture, Science & Technology, Commerce, Management Studies, Law, Arts & Humanities and Performing Arts. Online courses such as MOOC and NPTEL Courses are also offered by the University. Above all, the University facilitates Research leading to Doctoral Degrees in all disciplines.

The programs offered by REVA University are well planned and designed based on in depth analysis and research with

emphasis on knowledge assimilation, practical applications, hands-on training, global and Industrial relevance and their social significance.

REVA University is managed by Rukmini Educational Charitable Trust (RECT). RECT is a public Charitable Trust with the aim of promoting, establishing & conducting development activities in the fields of Arts, Commerce, Education, Engineering, Environmental Science, Management and Science & Technology, among others. In pursuit of meeting these aims, the Trust has set up the REVA Group of Educational Institutions comprising of REVA Institute of Technology & Management, REVA Institute of Science and Management, REVA Institute of Management Studies, REVA Institute of Education, REVA First Grade College, REVA Degree College (Evening), REVA Independent PU College at Kattigenahalli, Ganganagar and Sanjaynagar and the REVA University. Through these institutions, the Trust seeks to fulfill its vision of providing world class education and create abundant opportunities for

the youth of the country to excel in the areas of Engineering, Commerce, Management, Education, Science & Technology and Arts.

Authorities of REVA University approached Vimta Labs Limited Hyderabad with a view of conducting a green audit of the REVA University campus.

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development & production; Oil & gas transportation pipeline (crude and refinery/ petrochemical products), passing through national parks/ sanctuaries/coral reefs /ecologically sensitive Areas including LNG terminal; Ports, harbours, break waters and dredging; Synthetic organic chemicals industry; Thermal power plants; Townships and Area development projects.

Vimta Labs Limited is a leading Multidisciplinary testing and research laboratory in India. Vimta provides contract research and testing services in the areas of environmental assessment, analytical testing, clinical research, pre-clinical (animal) studies, clinical reference lab services, advanced molecular biology services and research & development studies.

The **Environment Division** of Vimta Labs Limited has been in the forefront of its vision to provide better environment through guiding and assisting the industry for sustainable

development. A stalwart in the mission to protect and preserve the natural resources on earth for future generations, it offers extensive research and consultancy services in the field of environment, with its rich experience, multi-disciplinary expertise and with the support of its state-of-the-art analytical equipment, the services offered by the division are wide ranging and encompasses entire gamut of environment management and monitoring services. With its emphasis on quality services over the years, it has evolved itself into a single reference point for all environmental services.

Further, it is an ISO 9001:2015 certified organization having NABL accredited laboratory attached to it which have certifications /approvals of OHSAS18001:2007 and MoEF & CC also.

## GREEN AUDIT

India is the first country in the world to introduce mandatory green audits. Governments of India, vide Gazette notification no.

GSR 329 (E) dated 13<sup>th</sup> March 1992, made it mandatory for all industries to provide annual environmental audit reports of their operations from the FY 1992-93 onwards. The National Assessment and Accreditation Council (NAAC) an autonomous institution of the University Grants Commission have also insisted for green audit reports.

Out of the seven criteria identified by NAAC as the basis for assessment, institutional value and best practices is identified with three key indicators (KIs) being (i) Institutional values and social responsibilities (ii) Best practices and (iii) Institutional distinctiveness. The United Nations Sustainable Development summit held on 25-27 September 2015 stated that Universities play an important role in building a knowledgeable society and thereby help in building a sustainable and secure future for the society. Here, both the UN and NAAC specify the social responsibility of HEIs.

Universities play an important role in building a knowledgeable society and thereby help in building a sustainable and secure future for the society

- (UNSDG summit 2015)

## SDGs and Green audit

The United Nations (UN) General Assembly in its 70<sup>th</sup> session held on 25<sup>th</sup> September 2015, adopted a document known as "Transforming our World: The 2030 Agenda for Sustainable Development"

containing 17 Sustainable Development Goals (SDGs) and 169 targets associated with them. The SDGs came into force with effect from 1<sup>st</sup> January 2016. The SDGs are a comprehensive list of global goals integrating social, economic and environmental dimensions of development. The SDGs

are universal (for all nations – developed, developing and least developed), interconnected and indivisible and required comprehensive and participatory approaches in bringing everybody together so that no one is left behind.

"You know that India is one sixth of the global community. Our development needs are enormous. Our poverty or prosperity will have direct impact on the global poverty or prosperity. People in India have waited too long for access to modern amenities and means of development. We have committed to complete this task sooner than anticipated. However, we have also said that we will do all this in a cleaner and greener way"

PRIME MINISTER NARENDRA MODI (2018)

India is committed to implement the SDGs in tune with the nationally defined indicators corresponding to national priorities and needs NITI (National Institution for Transforming India) Aayog, at national level, has mapped the SDGs with centrally sponsored programs of different Central Ministries/ Departments, towards integrating SDGs into country's on-going national and sub-national policies and programs. The integrated nature of the 2030 Agenda requires governments to work

across these and set ambitious and interrelated economic, social and environmental objectives that go beyond short-term political cycles. Government of India is working with the approach to strategic visioning, priority setting, and implementation. The Government of India is strongly committed to achieve the Sustainable Development Goals.

Following its commitment towards achieving the SDGs, Government has also initiated a series of nation-wide welfare and developmental programs.

The Government is committed towards ensuring "Sabka Saath, Sabka Vikas, Sabka Vishwas" in the spirit of the Sustainable Development Goals' motto of "Leaving No One Behind".

The SDG 17 is critical to the achievement of all SDGs. The country is dedicated to strengthen the means of implementation and revitalizing the Global Partnership for Sustainable Development provisioned under SDG 17.

The partnership among the different stakeholders like Government, societies etc.

are essential for achieving the target of sustainable development.

Universities are the primary contributors to build a sustainable society, the scholarly output coming from the Universities are of more importance in the present scenario. Therefore, it is felt that, while we address the social commitments of the HEIs, it will be better to link the environment and SDGs. While we think of green auditing, it only focuses environment. On the other hand, if we think in terms of the SDGs, it shall focus on society, environment, culture and economy. So, **linking SDGs with green auditing shall serve the real purpose of NAAC selecting the criteria of institutional value and best practices identified with the key indicators (KIs) of (i) Institutional values and social responsibilities (ii) Best practices and (iii) Institutional distinctiveness.**

Access to quality education is crucial for sustainable development and a pre-requisite for the achievement of the other goals. Higher education facilitates social mobility, empowers people through critical thinking and provides them with the

skills needed in a rapidly changing labour market. Higher education contributes in various ways to making people more resilient and able to face various challenges. OECD statistics confirm that people with a higher education degree are less likely to be unemployed and earn on average 54% more than those who only completed upper secondary education. A university education, thus, better protects against poverty.

**The reason to incorporate SDGs as a major component of green auditing of Higher Education Institutions/ Universities (here, the REVA University) is because of the main difference between sustainable development and green development that Sustainable Development focuses on society, environment, culture and economy whereas the green development focuses only on environment.**

Furthermore, the data reveals that higher education graduates are less likely to suffer from depression, which is an important factor for health and well-being. University health institutions play a key role in the public healthcare system. They

train new generations of medical professionals, provide care to millions of patients and conduct research that helps find innovative solutions to cure or even prevent disease. HEIs also become major employers, making considerable economic contributions to their regions. Digitalization, automation and globalization are changing the labour markets in a rapid and radical way. The demand for highly skilled people is increasing, making re-training and up-skilling ever more important.

HEIs/Universities conduct fundamental research that is crucial to understanding how nature and the earth's ecosystems function. HEIs may gather people from various disciplines, with different approaches and talents to find innovative solutions to the world's challenges. Research produces evidence that is indispensable in identifying developments in climate change and global warming, as well as its impacts. Research is also crucial in understanding the interactions of various SDGs, identifying trade-offs and mutual reinforcements and developing a balanced approach in

pursuing them. Interdisciplinarity is a major factor in this process.

Sustainable development is only possible if we radically change the way we produce and consume. Innovative solutions must be developed in a collaborative effort. HEIs especially Universities work with many entrepreneurs/ companies, other education providers and local stakeholders in this regard, often supporting business creation through start-ups. This makes higher education a key facilitator in open innovation. Universities also provide the international links and route maps needed to support local innovation on ecosystems and achieve sustainable growth. Strong autonomous educational

institutions/ HEIs/Universities are important partners of governments, companies and civil society in working towards common goals. These partnerships and collaborations are crucial in the promotion and implementation of the SDGs, in any country. Universities facilitate interactions among people-to-people and are important actors in soft diplomacy. Many students' cross borders to gain knowledge about new cultures and bring understanding about their own countries to their hosts. Researchers cooperate around the globe, building networks and developing the knowhow needed to sustain innovation worldwide.

HEIs are closely connected to their regions, playing a

crucial role in the education, innovation, culture and civic life of their local communities. The University Grants Commission (UGC), the senior policy-making body on higher education, has announced a new policy framework promoting Social Responsibility and Community Engagement in Higher Education Institutions in India. The new policy framework of UGC promoting Social Responsibility and Community Engagement in HEIs shall justify that linking of SDGs in this report with green auditing shall serve the real purpose of NAAC selecting the criteria of institutional value and best practices identified with the key indicators (KIs) of (i) Institutional values and social responsibilities (ii) Best practices and (iii) Institutional distinctiveness.

The new policy framework of UGC promoting Social Responsibility and Community Engagement in HEIs shall justify that linking of SDGs in this report with green auditing shall serve the real purpose of NAAC selecting the criteria of institutional value and best practices identified with the key indicators (KIs) of (i) Institutional values and social responsibilities (ii) Best practices and (iii) Institutional distinctiveness.

## **INTRODUCTION**

Times Higher Education (THE) Impact ranking is giving ample opportunities to universities to showcase their commitment towards

society. Being the transformation leaders in the field of education, research and innovation; the universities play a key role in the development of a sustainable society.

Times Higher Education launched its SDG ranking in 2019 in the name of THE Impact Ranking (Barrick, J. A. et al. 2019).

Universities shall be advantageous of getting engaged with the SDGs also demonstrate their impact over the society, address demand for SDG-related education, build new partnerships, to get access of new funding sources, and define it as a university that is responsible and globally aware, in short, describing it as **TOWARDS THE GLOBAL GOALS.**

Education and research are clearly recognised in many of the SDGs which underline that HEIs/ Universities have a direct role in addressing these.

The role and contribution of HEIs/Universities to the SDGs is much broader, as they have direct or indirect role in implementation of all of the SDGs as well as the implementation of the SDG framework itself. Universities around the world are engaging to reach the SDGs with the world's ambition to achieve the SDGs, especially on poverty (SDG1), livelihood and food (SDG2), health (SDG3), education(SDG4), employment (SDG5), and economic growth, infrastructure (SDG9,10) (Stephens, J. C. et al. 2008). Universities provide

cutting-edge research, high quality education, and ground-breaking innovation (Goal 4 and 9).

Strong universities become significant part of civil societies (SDG 16) and they ought to be the professional promoters of global, regional and local partnerships (SDG 17), which is of prime importance. Through their contributions, the universities facilitate the achievement of all the 17 SDGs.

Approaching the impact ranking requires skills and mindset to contribute and meet the SDGs challenges.

Universities shall be advantageous of getting engaged with the SDGs so as to demonstrate their impact over the society, address demand for SDG-related education, build new partnerships, to get access of new funding sources, and define it as a university that is responsible and globally aware, in short, describing it as **TOWARDS THE GLOBAL GOALS.**

Being revolutionary agents and creators of opportunities, HEIs/ Universities have to undergo different perspectives and expectations to maintain sustainability. It will lead to the inclusion of SDGs in future planning to achieve the set goals (Stephens, J. C et al. 2008; Ivanova, D. et al. 2016).

Many of the unexpected challenges faced and/or being faced by the society due to Covid-19 infectious disease adversely affected the current trends and patterns of resource use, improvement in health care and research in these areas. It has also critically affected poverty, availability of food, education, physical & mental health, availability

of drinking water & resources etc. etc. Research article mentioning the correlation between SDGs and their necessity while doing a related study is still not accepted or re-researched in its full strength to the research world. (Fonseca, L. M. et al. 2020).An elaborated correlation study was done which explain the importance of

correlation of SDGs among each other as well as the areas (SDGs) which need to be carefully dealt with while doing research.

This is because the improvement of research in one area should not adversely affect the other areas. (Molinari, J.F. et al. 2008; Fuso-Nerini, F. et al. 2017). This intensifies the importance of SDG 17- Partnerships for the Goals. Research in these areas is of great relevance at the present stage. The pandemic has challenged the health sector research, lively-hood, education in rural villages, poverty and economic growth. This is a challenging time for all universities in the world to think of international investments and support to

lead to innovative technology developments (Jain, A. K. et al. 2019). There are ample opportunities for the research-oriented institutions to evaluate these challenges and recommend solutions for them (Nilsson, M. et al. 2016; Singha, G.G et al. 2018; Pradhan, P 2017).

Education plays a critical role, both in preparing a new generation of citizens, practitioners and policymakers to accelerate and increase the pace of SDG implementations. It can also help strengthen the enabling conditions that would make these dramatic changes possible, that have no precedence in human

history and that of the Indian subcontinent,

Education, learning, and building awareness about risks and solutions are key to combating climate change (Mochzuki & Bryan 2015; Anderson, 2012). Climate change education (CCE) influences skills, attitude and behaviour change, driving individual change and societal transformation (Facer et al. 2020, O'Brien & Leichinko, 2019). While CCE falls under the broad umbrella of Education for Sustainable Development (ESD), in recent years, there have been calls for targeted focus on climate change (Mochzuki & Bryan, 2015).

**Strong universities become significant part of civil societies (SDG 16) and they ought to be the professional promoters of global, regional and local partnerships (SDG 17), which is of prime importance. Through their contributions, the universities facilitate the achievement of all the 17 SDGs.**

The new guidelines issued by UGC recommend that:

“The goals of fostering social responsibility and community engagement in HEIs” can comprise of

- Improving the quality of teaching/learning in HEIs, by bridging the gap between theory and

practice through community engagement;

- Promoting deeper interactions between higher educational institutions and local communities for identification and solution of real-life problems faced by the communities in a spirit of mutual benefit;

- Facilitating partnerships between local communities and institutions of higher education so that students and teachers can learn from local knowledge and wisdom;

- Engaging higher institutions with local communities in order to

make curriculum, courses and pedagogies more appropriate to achieving the goals of national development;

- Catalyzing acquisition of values of public service and active citizenship amongst students and youth alike, which would also encourage, nurture and harness the natural idealism of youth;
- Undertaking research projects in partnership with local communities through community-based research methods.

Further, the above guidelines recommend that existing courses should be re-designed to integrate interactions with local society in learning process. Additionally, these guidelines propose that new courses that are relevant to changing societal contexts should be

offered as options to all students.

“Such courses can be audited by students, or taken as a part of 25% provision for external (to faculty) courses now allowed by UGC guidelines. Universally, all type of organizations nowadays recognize the importance of environmental matters and realize that their activities & environmental performances will be under continuous and vigilant observations by a wide range of interested parties. These can be short-term certificate courses, or integrated into the existing syllabus. By their very nature, such courses are trans-disciplinary and require community engagement activities by students. Additionally, new courses which teach about

Sustainable development Goals (SDGs) will provide local understanding about some of these goals to students, in addition to learning about Agenda 2030.” Therefore, discussions about integrating the SDGs within HEIs, their professional associations and networks in India will hopefully gather some momentum soon. India’s large and rapidly growing higher education sector needs to urgently focus its core functions of teaching and research on the SDGs. Not only will their enormous educational and intellectual resources be valuable for finding local solutions to the SDGs, but they will also be able to mobilize future generations to pay attention to sustainability challenges in the years ahead.

Universally, all type of organizations nowadays recognize the importance of environmental matters and realize that their activities & environmental performances will be under continuous and vigilant observations by a wide range of interested parties.

**ENVIRONMENTAL AUDIT**

Environment is a complex of physical, chemical and biotic factors that act upon an organism or an ecological community, including human being and their belongings, and

ultimately determine its form and survival. It is the combination of different external physical conditions that affect and influence the growth, development and survival of organisms. Such external

conditions include biotic components like flora, fauna, micro-organisms and such other living things and also abiotic components like soil, weather, water, air, sunlight etc. Green audit

was initiated at the beginnings of 1970s aimed in inspecting the activities conducted by organizations, within their territories, whose exercises can cause risk to the inhabitants and the environment. Through green audit, one gets an idea on his own environment, as to how to improve the status of environment and further to analyze the cost and benefit. The term Environmental audit is also used in place of green audit, but mutatis mutandis in certain circumstances. Universally, all type of organizations nowadays recognize the importance of environmental matters and realize that their activities & environmental performances will be under continuous and vigilant observations by a wide range of interested parties.

Environmental auditing is a management tool used for measuring the effects of specific activities on the environment against the pre-set criteria or standards. Depending on the types of standards and the focus of the audit, there are different types of environmental audit. Universally, all type of organizations nowadays recognize the importance of environmental matters and realize that their activities & environmental performances will be under continuous and vigilant observations by a wide range of interested parties. Environmental auditing is used to

- investigate
- understand
- identify

These are used to help improve existing human activities, with the aim of

reducing the adverse effects of these activities on the environment. An environmental auditor will study an organization's environmental effects in a systematic and documented manner and will produce an environmental audit report. There may be many reasons for undertaking an environmental audit, which include issues such as mandatory compliance of provisions of environmental legislations and/or pressure from customers, shareholders, public at large and/or self-assessment due to social commitment etc. In the present case, criteria 7 of NAAC in accreditation process are also considered in addition to the social commitment of the University. The term 'audit' has its origins in the financial sector.

Environment Impact Assessment (**EIA**) is conducted, before an action is carried out (on proposed activity- *ex ante*). Environmental Auditing (**EA**) is carried out when a development is already in place (during & after activities- *ex post*).

Auditing, in fact, is a methodical examination - involving analyses, tests, and confirmations - of procedures and practices whose goal is to verify

whether they comply with legal requirements, internal policies and accepted practices. The International Chamber of Commerce (ICC) produced a

definition in 1989: A management tool comprising systematic, documented, periodic and objective evaluation of how well the



organization, equipment, environment and its management are performing with the aim of helping to safeguard the environment by facilitating management control of practices and assessing compliance with company policies, which would include regulatory requirements and standards applicable.

## EA & EIA

Environmental Auditing (EA) should not be confused with Environment Impact Assessment (EIA). Both Environmental Audit (EA) and Environment Impact Assessment (EIA) are environment management tools, and both may share same terminology like 'impact, consequence, effect, significant, long-term, short-term, chronic' etc.;

but there are some important differences between these two.

Environmental impact assessment is an anticipatory tool. That means EIA is conducted, before an action is carried out (on proposed activity- *ex ante*). EIA therefore attempts to predict the impact on the environment of a proposed action, predict the impacts and to provide this information to the decision makers/ authority on whether the project should be cleared or not. EIA is also a legally mandated tool for many projects in most countries. In India, it is regulated as per EIA notification 2006 and subsequent amendments thereto.

Environmental auditing is carried out when a development is already in

place, and is used to check on existing practices, assessing the environmental effects of current or already undertaken activities (during & after activities- *ex post*). Environmental auditing therefore provides a 'snap-shot' of looking at what is happening at that point of time at the environment.

According to World Bank, environment audit is a methodical examination of environmental information about an organization, a facility or a site, to verify whether, or to what extent, they conform to specified audit criteria. The criteria may be based on local, national or global environmental standards. Thus, it is a systematic process of obtaining and evaluating information about environmental aspects.

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Irrespective of the process that is actually being undertaken, some organizations prefer not to use the term 'audit'. In some cases, therefore, an

organization may call the procedure of auditing against set criteria for environmental review, as Environmental Assessment, or Performance or any

other term used specifically for their own purposes.

Environment auditing can encompass all types of

audit, i.e., financial, compliance and performance audits. With respect to performance audits, the three E's of Economy, Effectiveness, and Efficiency can be included. The adoption of the fourth E, that is 'Environment', depends on the institution's mandate and its environmental policy, which is desirable but not critical, in carrying out environment audit. According to the type of audit requirement, scope of audit may also differ.

Different types of such auditing are:

(i) **Compliance audit:** The scope of audit is restricted to checking compliance of the audit entity with respect to policies/ laws/ rules/regulations which are specific to institution audited.

(ii) **Performance audit:** The scope could encompass the following:

- Audit of Government's monitoring of compliance with environmental laws: The main aim of such audit is to offer an opinion on the performance of the audit entity with regard to compliance against already established environmental laws.
- Audit of the performance of Government's environmental programs: The main aim of such audit is to offer an opinion on the performance of specific environmental programs/projects/strategies already formulated and being implemented by the Government.
- Audit of the environmental impact of

other Government programs: The main aim of such audit is to offer an opinion on the environmental impact of other programs/projects formulated and implemented by other Ministries/departments/agencies other than the Ministry/Department of Environment. For example, audit of the impact of mining, building roads/dams, military operations etc., on the environment would fall under this category.

- Audit of Environmental Management Systems: The main aim of such audit is to offer an opinion on the implementation of Environment management Systems (EMS) of the audit entity and/or ISO 14001 Standards. The absence of an EMS can also be a source of audit comments.

With respect to performance audits, the three E's of Economy, Effectiveness, and Efficiency can be included. The adoption of the fourth E, that is 'Environment', depends on the institution's mandate and its environmental policy, which is desirable but not critical, in carrying out environmental audit.

• Evaluation of environmental policies and programs: The main aim of such audit is to offer an opinion on the adequacy or lack of a policy framework governing environmental issues.

International best practices can be a source for such comparison. However, adaptability to local conditions should be considered before making such comparisons.

(iii) **Financial audit:** Some audit entities operate in sectors where environmental matters may have material impact on their financial statements. In such entities, impact of environment

related issues requires to be adequately reported upon in the financial statements.

The International Auditing Practices Committee (IPAC) defines environmental matters in a financial audit as:

- Initiatives to prevent/abate/remedy damage to the environment or to deal with the conservation of renewable and non-renewable resources. Such initiatives may be required by environmental laws and regulations or by contract, or they may be undertaken voluntarily.
- Consequences of violating environmental laws and regulations.
- Consequences of environmental damage done to others or natural resources.
- Consequences of vicarious liability imposed by law. An example could be the present owners being held liable for environmental damage

caused by the previous owners. Based on these considerations, an audit opinion can be expressed inadequacy of compliance to the various local, national and adopted international regulations.

## About this report

The Green auditing conducted in REVA University is in three parts:

**1. Compliance Audit-** In terms of 17 SDGs. The audit of the institution capacity or initiatives or performances in attaining the 17 Sustainable Development Goals proposed by the United Nations and/ or its participation in the attempts of Government of India at national level and Government of Karnataka at local level.

**2. Performance audit-** In terms of ISO 14001:2015 standards. This is the audit of Environment Management Systems, under the performance audit, by applying the

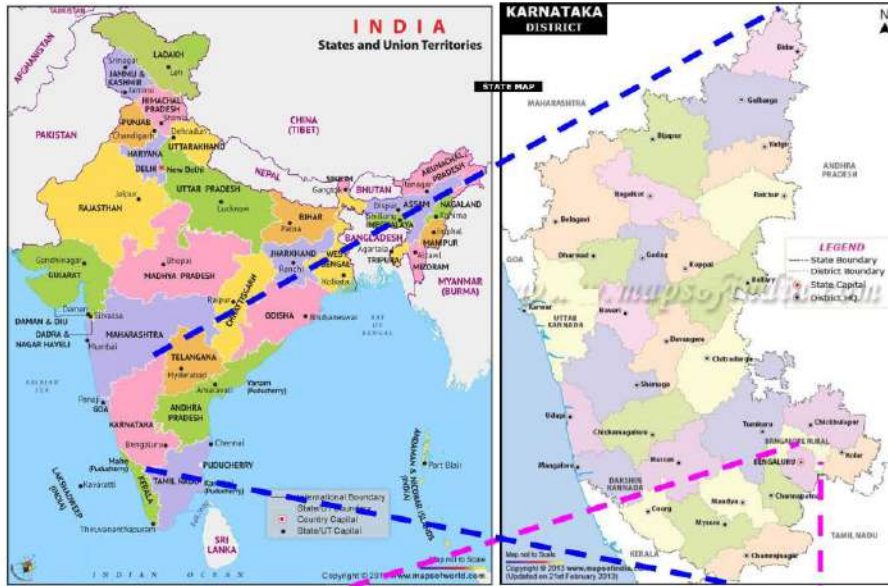
guidelines of Environment Performance Evaluation (EPE).

### 3. Carbon foot print-

Carbon Footprint refers to the potential climatic impact (Global Warming) of the Greenhouse Gases (GHG) emitted directly or indirectly due to an organization's activities. A Carbon Footprint Disclosure of any educational institution is very important to understand such that its key emission sources can be identified and necessary mitigation measures can be adopted for carbon reduction.

### Location of the project

REVA University campus has an extent of 40 acres of land (161874.4 m<sup>2</sup>) comprised in Sy. Nos. 222, 223,224, 225, 226, 227, 228 and 132/2 of Kattigena Halli Village, Yelahanka Taluk, Bangalore Urban district of Karnataka State.



## UNDERSTANDING THE 17 SDGs

On 1 January 2016, the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development— adopted by world leaders in September 2015 at a historic UN Summit — officially came into force. For traditions of years, Vasudhaiva Kutumbakam, an ancient Indian phrase meaning “the world is one family”, depicts the spirit of India's approach to all aspects of life including economic development. The Sustainable Development Goals (SDGs) thus become the country's longstanding

tradition and heritage. Now the goals substantially reflect the development agenda of India. Addressing the United Nations Sustainable Development Summit in September 2015, Prime Minister Narendra Modi said, “Much of India's development agenda is mirrored in the Sustainable Development Goals. Our national plans are ambitious and purposeful; Sustainable development of one-sixth of humanity will be of great consequence to the world and our beautiful planet.”The education sector is one of the few sectors that can support, promote, and contribute to achieving all of the 17

United Nations' Sustainable Development Goals (UNSDGs).

Role of Universities in achieving the SDGs are significant because they can equip the newer generations with the skills, knowledge and understanding to address sustainability challenges and opportunities and perform research that advances the sustainable development agenda.

Universities can also provide examples and use their expertise, capabilities, and leadership to influence stakeholders to adopt and model more sustainable practices.

“Much of India's development agenda is mirrored in the Sustainable Development Goals. Our national plans are ambitious and purposeful; Sustainable development of one-sixth of humanity will be of great consequence to the world and our beautiful planet.”

■ Prime Minister Narendra Modi at UNSD Summit 2015

To be effective, however, universities should be committed in supporting and implementing the 2030 Agenda for Sustainable Development. The SDGs can be considered as important vehicles in creating positive impact by embedding sustainability into university business strategies, decision-making processes and practices, and for

improving their accountability to their stakeholders.

Education and research are explicitly recognised in a number of the SDGs and universities have a direct role in addressing these. However, the contribution of universities to the SDGs is much broader, as they can support the implementation of every

one of the SDGs as well as the implementation of the SDG framework itself. Some of these main areas of contribution are:

Learning and teaching: Providing students with the knowledge, skills and motivation to understand and address the SDGs (broadly 'Education for SD'); providing in-depth academic or vocational

expertise to implement SDG solutions; providing accessible, affordable and inclusive education to all; providing capacity building for students and professionals from developing countries; and empowering and mobilizing young people.

Research: Providing the necessary knowledge, evidence-bases, solutions, technologies, pathways and innovations to underpin and support the

implementation of the SDGs by the global community – through both traditional disciplinary approaches and newer inter-intra-trans-disciplinary, and sustainability science approaches; providing capacity building for participating countries in undertaking and using research; collaborating with and supporting innovative companies to implement SDG solutions; improving diversity in research; and student

training for sustainable development research.

Organization governance, culture and operations: Implementing the principles of the SDGs through governance structures, operational policies and decisions, such as those relating to employment, finance, campus services, support services, facilities, procurement, human resources, and student administration.

**CONDUCTED REVA UNIVERSITY GREEN AUDIT IN THREE PARTS:**

- Compliance audit (SDGs),**
- Performance audit (ISO 14001) and**
- Carbon footprint (GHG emissions)**

External leadership: Strengthening student-public interactions, public engagement and participation in addressing the SDGs; initiating and facilitating cross-sectoral dialogue and action; ensuring higher education sector representation in national implementation; helping to design SDG based policies; and demonstrating sector commitment to the SDGs.

For this, a whole-of-university approach is essential and universities can use the following Steps to start and deepen their engagement with the SDGs:

1. Mapping what they are already doing
2. Building internal capacity and ownership of the SDGs

3. Identifying priorities, opportunities and gaps
4. Integrating, implementing and embedding the SDGs within university strategies, policies and plans
5. Monitoring, evaluating and communicating their actions on the SDGs

# 1. COMPLIANCE AUDIT

The compliance audit will be looking into the SDGs. Sustainable development has been part of the strategic commitment of the International Association of Universities (IAU), the most global university network, to improve higher education for over 25 years. Universities play very important role in SDG attainments. They may include: **Learning & teaching** - Providing students with the knowledge, skills and motivation to understand and address the education sustainable development providing in-depth academic or vocational expertise to implement SDG solutions; providing accessible, affordable and inclusive education to all; providing capacity building for students, future leaders

and professionals; and empowering and mobilizing young people; **Research** - Providing the necessary knowledge, evidence-base, solutions, technologies, pathways and innovations to become underpin and become champions of sustainable development and play a leading role in support of the implementation of the SDGs by the global community – through both traditional disciplinary approaches and newer inter& trans disciplinary and sustainability science approaches; providing capacity building for others in undertaking and using research; collaborating with and supporting innovative companies to implement SDG solutions; improving diversity in research; and student training for

sustainable development research; **Organization governance, culture and operations** - Implementing the principles of the SDGs through governance structures and operational policies and decisions, such as those relating to employment, finance, campus services, support services, facilities, procurement, human resources, and student administration; **External leadership** - Strengthening public engagement and participation in addressing the SDGs; initiating and facilitating cross-sectoral dialogue and action; ensuring higher education sector representation in national implementation; helping to design SDG based policies; and demonstrating sector commitment to the SDGs.

Poverty is regarded as an impediment within the course of social, cultural, economic, political and educational development. In the present world, education is regarded as important in elimination of the conditions of poverty.

Through their current actions in these areas, universities already make important contributions to

the achievement of the SDGs. However, for the SDGs to be truly successful at a global scale,

universities need to support the implementation of the SDGs




### SDG-1 POVERTY

The multi-dimensional strategies to combat poverty is necessitated which requires action on all fronts of water, energy, food security, livelihoods creation, securing the health of people & natural resources on which the

livelihoods of people depend, reducing vulnerabilities, ensuring equity etc. These are components in other SDGs. Therefore, assessments for “ending poverty” arrive from the other 15 subsequent Goals except the 17th goal. Poverty is regarded as an impediment within the course of social, cultural, economic, political and educational development. In the present world, education is regarded as important in elimination of the conditions of poverty. Poverty is regarded as an impediment within the

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The indirect effect of education on poverty is important with respect to human poverty, the reason being, as education improves the income, the fulfillment of basic necessities becomes manageable and increases the living standard which means that there is considerable decline in human poverty as far as mankind is concerned.

	End poverty in all its forms everywhere	
Activity	Status	
Research on poverty related topics	Yes- 11 nos	
Financial aid to students facing poverty	Yes- Scholarship & Fee concession	
Policy target to admit students facing poverty	No	
Anti-poverty student programs	No	
Antipoverty community programs	Yes- Abhivrudhi program	
Programs to address decent dress/cloth to students/ staff	Yes- Included in Code of Conduct	
Ensuring fair trade and/or ethical supply chains	Yes – call for quotations and lowest quote keeping in view the quality considerations, the vendor is approved	



Purchase from local markets/ direct from agricultural fields	Yes- from local markets
Investment policies promoting ESG (Envnt. Social & Governance) principles	Yes- every year Green Audit is conducted to ensure continual improvements.



**SDG-2 FOOD**

Food security is influenced by a number of factors, including those that determine food availability— domestic food production and the capacity to import food—

as well as determinants of food access, including the distribution of food among various segments of the population. The programs may include provisions for providing access to safe and nutritious food for all. It may also include support given in irrigation, soil and water conservation, wasteland regeneration and rain-fed farming. The Government of India has introduced the National food security act, which

has been dubbed the world's greatest welfare project, ever. To estimate the prevalence of food insecurity among students the association between food insecurity, demographic structure and characteristics, potential financial risk factors, and self-reported physical/mental health, academic performance etc. are to be identified.

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	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	
Activity	Status	
Research related to hunger	Yes- 15 nos	
Campus food waste	Yes, regularly monitored	
Measures to reduce food waste	Yes, minimize by messages to students, control over production by space basic app	
Program to address student & staff food insecurity	Yes, food committee meetings are regularly held	
Sustainable, nutritious and affordable food choices in campus	Yes	
Courses in food sustainability	Yes, Eg: Organic Farming, Food Science and nutrition, Health and Hygiene	

Facilitating food production in campus	Yes, small scale Organic farming utilizing the vermin-compost produced in the campus itself
Offering fresh food markets in campus	Yes, being set up
Events of technology transfer to farmers	No
Events of skill attainment from farmers	No
Any permanent system for the interaction of farmers and food producers	No

The education indirectly helps every individual as well as the society in the accomplishment of basic needs like water and sanitation, utilization of better health facilities, sanitary shelter, and it also affects the women's behaviour in reproductive decision making and family planning.

## PROJECT REPORT

**TITLE: Elevated CO<sub>2</sub> levels in atmosphere effects human nutrition levels in blood**





#### LOCATION:

Lalbagh – Bangalore

Date of collection of blood in Lalbagh – 02.10.2019

#### OBJECTIVES:

To evaluate the abnormality levels of electrolytes, zinc, vitamin B12, total protein in human blood samples in various location of Bangalore.

#### INTRODUCTION

Carbon dioxide is given off in our body as a bi-product of the cell metabolism. Like  $O_2$ , it diffuses into the blood from the tissues and it is taken up to the lungs via the venous system present to be expelled.

Normal range of  $CO_2$  in the blood is 23 to 29 mill mole per litre and it is mostly present in the human body in the form of

bicarbonate ions ( $HCO_3$ ) and it is known to regulate the blood pH by regulating acidosis and alkalosis .[pH below 7.35 to pH above 7.45].

Changes in the  $CO_2$  levels may lead to electrolyte imbalance i.e. it can cause Plasma, Chloride, Calcium, Potassium and Sodium levels to increase. In this project, the blood serum was collected from approximately 10 people with different age groups ranging from 18 to 25 years, 30 to 45 years , 50 to 60 years in different locality, the main aim was to analyze the serum levels in different electrolytes which included Sodium, Potassium, Proteins, Vitamin  $B_{12}$  and Zinc. After the performed experiment the Sodium levels were found to be higher than the normal range and levels of other different parameters like Potassium,

Calcium and Zinc was observed to be normal to all age groups. Now because of the rising levels of  $CO_2$  in the atmosphere, it accelerates the Zinc and Protein deficiency in the crops decreasing its nutritional level, which resulted in the deficiency in the Zn and protein on consumption in the body.

Hypercapnia also known as hypercarbia is a condition which is caused by arising excess  $CO_2$  in the blood. This condition often leads to disordered breathing where not much of  $O_2$  is allowed to enter followed by not much of  $CO_2$  is allowed to leave the lungs. Other lung diseases may also be caused due to increased levels of  $CO_2$ .

Pictures showing I M.Sc Biochemistry students collected the blood from the volunteers in Lalbagh





## METHODOLOGY

### 1. COLORIMETER



2. PHOTOMETRY



3. Chemiluminescence immunoassay (CLIA)



Carbon dioxide Monitor in Ialbagh		
Place	CO <sub>2</sub> (ppm)	Temperature (°C)
First Zone		
Parking Lot	407	22
Car Parking	492	23.1
Café	431	23.2
Opp to café (150 m)	427	23

(250m)	411	22.6
(300 m)	402	22.4
Near the Hill	385	22.1
Above the Hill	395	22.5
Bonzi park	442	25.3
Hopcoms	438	25
(50 m)	454	24.2
Garden	400	22.7
(150m)	380	23.2
(200m)	387	22.7
Second Zone		
Horticulture	395	22.1
Opp Horticulture	393	22
Opp to horticulture main gate	395	22.5
Outside glass house	408	23.1
Glass house	395	23.5
Behind the glass house	384	25
Third Zone		
Small lake	432	23.8
Big lake I	400	24.5
Big lake II	383	24.7
Behind lake West gate	380	24.2
Outside West gate	412	25
Fourth Zone		
Road	531	25
Signal	1042	25.6
Maps	451	25.6
Fifth Zone		
Power panel	407	25.5
Power panel 100m	399	25.5
Power panel 200m	396	25.5
Composting	431	25.8
water treatment	379	25.7
(300 m)	366	24.7
(400 m)	554	24.7

RESULTS

PATIENT NAME : AKULLAPPA			
PATIENT AGE : 42			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	7.5	3.5 - 5.5 mg/dl

CALCIUM TEST	COLORIMETRIC METHOD	11.62	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	209.09	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	11.22	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	185	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	243	211 - 911 pg/ml

PATIENT NAME :UDAY			
PATIENT AGE :18			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	3.54	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	11.35	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	263	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	8.86	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	338	52 - 286 ug/ml
VITAMIN B12	C.L.I.A	188	211 - 911 pg/ml

PATIENT NAME :DIVYA MOHAN			
PATIENT AGE :35			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	4.37	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	8.91	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	263	135 - 145 mEq/l





TOTAL PROTEIN	COLORIMETRIC METHOD	8.27	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	231	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	120	211 - 911 pg/ml

PATIENT NAME :SUNIL KUMAR			
PATIENT AGE :39			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	5.41	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	9.45	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	200	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	12.4	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	168	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	226	211 - 911 pg/ml

PATIENT NAME :THIMME GOWDA			
PATIENT AGE :43			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	3.9	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	8.91	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	209	135 - 145 mEq/l

TOTAL PROTEIN	COLORIMETRIC METHOD	9.45	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	192	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	547	211 - 911 pg/ml

PATIENT NAME : HB THAPPA			
PATIENT AGE : 40			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	2.29	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	11.6	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	254	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	10.6	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	168	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	274	211 - 911 pg/ml

PATIENT NAME :KUNTAPPA			
PATIENT AGE :51			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	13	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	8.91	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	181	135 - 145 mEq/l

TOTAL PROTEIN	COLORIMETRIC METHOD	7.6	6 - 8 g/dl
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PATIENT NAME :NITESH KUMAR			
PATIENT AGE :22			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	5.2	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	10	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	200	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	11.8	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	188	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	235	211 - 911 pg/ml

PATIENT NAME :NARAYAN RAO			
PATIENT AGE :68			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	4.3	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	8.1	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	200	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	11.8	6 - 8 g/dl

PATIENT NAME :BASHEER			
PATIENT AGE :45			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE

POTASSIUM TEST	COLORIMETRIC METHOD	3.7	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	8.1	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	200	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	8.2	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	197	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	430	211 - 911 pg/ml

PATIENT NAME : S PARMESH			
PATIENT AGE : 30			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	3.3	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	9.1	8.8 - 10.5 mg/dl
SODIUM TEST	COLORIMETRIC METHOD	190	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	8.2	6 - 8 g/dl
ZINC TEST	PHOTOMETRY METHOD	336	52 - 286 µg/ml
VITAMIN B12	C.L.I.A	242	211 - 911 pg/ml

PATIENT NAME :MOHAN RAJ			
PATIENT AGE :71			
TEST NAME	TEST METHOD	RESULT	NORMAL RANGE
POTASSIUM TEST	COLORIMETRIC METHOD	4.8	3.5 - 5.5 mg/dl
CALCIUM TEST	COLORIMETRIC METHOD	9.5	8.8 - 10.5 mg/dl

SODIUM TEST	COLORIMETRIC METHOD	160	135 - 145 mEq/l
TOTAL PROTEIN	COLORIMETRIC METHOD	7.5	6 - 8 g/dl

MATERIALS AND METHODS

Patients and samples

For the study, the blood samples were collected from 10 patients of different age groups of 18 – 65 years. Serum was separated from the whole blood using gel tubes (or SST tubes). The serum sample was used for studying the parameters. The samples were stored at -8°C until it is used for analysis.

Methodology

Different kits were used for the analysis of sodium, potassium, calcium and total protein, were the standard and blank reagents of each parameter will be given, these kits work on the principle of colorimeter assay where the amount of the substance present depends on the intensity of the colour developed. The presence of zinc was tested by photometric method and vitamin B12 was assayed on C.L.I.A (Chemiluminescence immunoassay).

The normal ranges of the parameters are-

For adults- Calcium-8-11mg/dl; Potassium-3.5-4.5mg/dl; Sodium-135-145mEq/L; Total protein-6-8g/dl; Zinc- 52-286µg/ml; Vitamin B12-211-911pg/ml

RESULTS

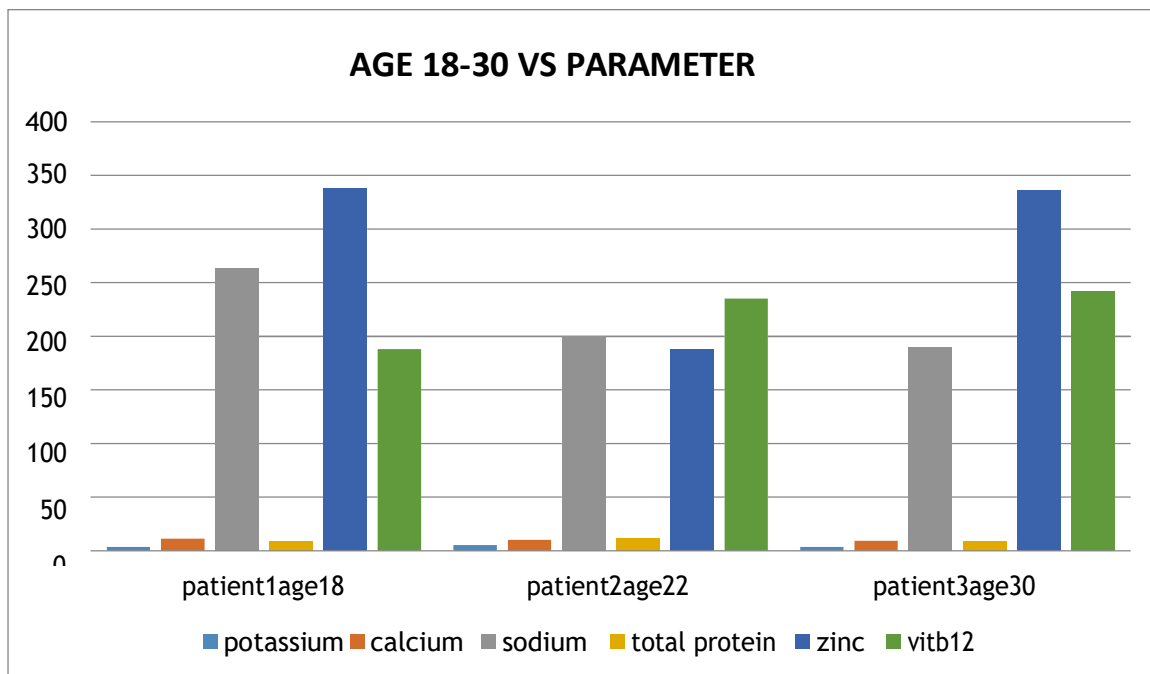


Fig:1- This graph represents, the first patient of age 18 has high levels of Calcium , Total protein, Zinc, Sodium and low level of Vitamin B12. The second patient of age 22 has high levels of Total Protein, Sodium rest are within normal range. The third patient of age 30 has high levels of Total Protein, Zinc, Sodium and the rest are within normal range.

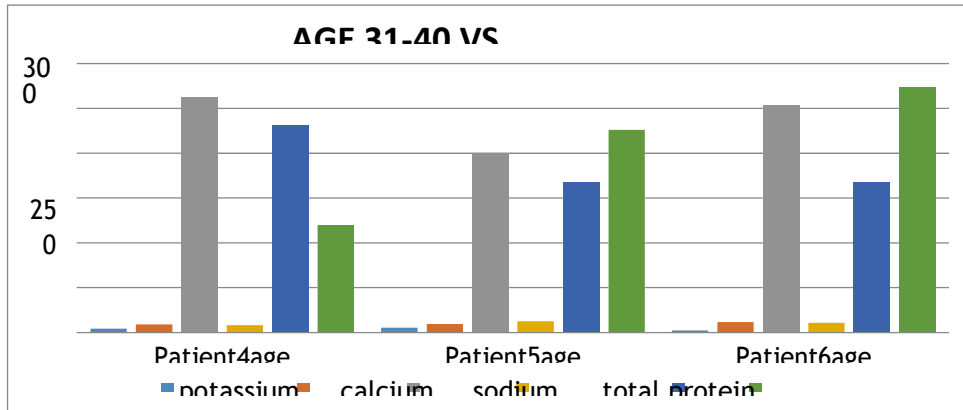


Fig 2- This graph represents, the first patient of age 35 has high levels of Potassium, Total protein, Sodium and low level of Vitamin B12. The second patient of age 39 has high levels of Total Protein, Sodium rest are within normal range. The third patient of age 40 has high levels of Calcium, Total Protein, Sodium and low level of Potassium.

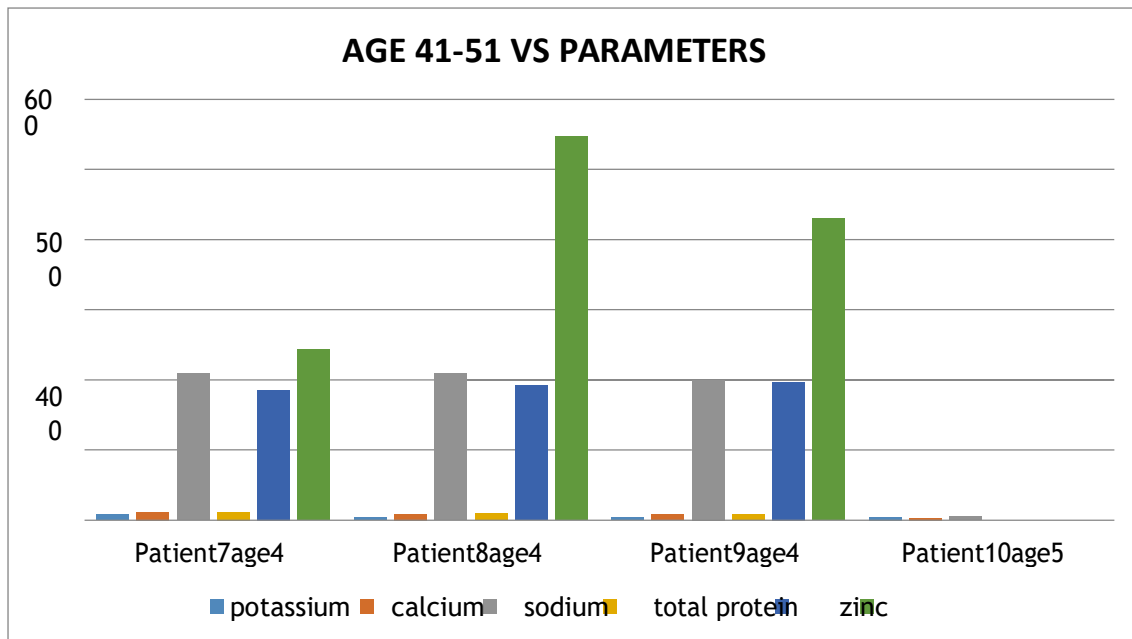


Fig 3- This graph represents, the first patient of age 42 has high levels of Potassium, Total protein, Sodium, Calcium rest are within normal range. The second patient of age 43 has high levels of Total Protein, Sodium rest are within normal range. The third patient of age 45 has high levels of Total Protein, Sodium rest are within normal range. The fourth patient of age 51 has high levels of Sodium and low level of Potassium.

**DISCUSSION**

In our study, we have observed that high level of zinc, sodium and vitamin b12. we have observed that from the age group of 18 to 40 some of the results show that the increased level of zinc than compared to the level of

sodium and vitamin B<sub>12</sub>. In some cases these levels are normal, in other cases there is increase in the level of both sodium and vitamin B<sub>12</sub> level.

Zinc plays an important role in our body such as boosting the immune system, helps in cell division, it also maintains the smell and taste, promotes wound healing, important mineral for pregnant women, delayed sexual maturity, hair loss. These can be cured by taking some zinc molecules like zinc gluconate, zinc sulfate or zinc acetate.

Sodium is an essential electrolyte plays an important role in regulating the level of water and other substance in our body. The amount of sodium in the body is high it is known as

hypernatremia, this is a common problem in adults. The symptoms are irritability, restlessness and muscle twisting, which affects the central nervous system and loss of water content from brain cells. The treatment for hypernatremia is to replenish fluids, fluids levels are corrected slowly to avoid the condition known as cerebral edema (swelling of the brain).

Vitamin B<sub>12</sub> is an essential micronutrient, which plays an important role in cell division and carbon metabolism. In serum this vitamins are bound to a proteins known as transcobalamin (tc) and haptocorrin (hc). Increase in the level of vitamin B<sub>12</sub> occurs with myelo-proliferation disorder or causes hepatic disease.



**SDG-3 HEALTH**

The programs may include ensuring mandatory

vaccinations for children, regular health checkups for students/ staff in academics, supporting the government in implementing health policy and programs. The education indirectly helps every individual as well as the society in the accomplishment of basic

needs like water and sanitation, utilization of better health facilities, sanitary shelter, and it also affects the women's behaviour in reproductive decision making and family planning.

	Ensure healthy lives and promote well-being for all at all ages	
	Activity	Status
	Research related to health and well being	Yes – 164 nos
	Health habits in campus like cycling/ yoga	Yes, Yoga classes and Zumba classes for Hostel students
	Health facilities in campus like gym, indoor stadium, outdoor play grounds with floodlights, music rooms, performance theatres	Yes
	Sexual & reproductive health care facilities	Yes, REVA Health centre
	Students & staff programs for improving physical health	Yes, yoga classes, health check up, medical camps
	Students & staff programs for improving mental health	Yes- interaction with Counselor is encouraged
	Students & staff programs for improving emotional health	Yes, Counselor available all the days
	Students & staff programs for improving spiritual health	Yes, discourses by Swami Sukbodananda and other sessions
	Students & staff programs for improving cultural health	Yes, Revotsava, Snehasammelana and other platforms
	Community outreach programs for health and well being	Yes – Face shield, Ideathon, Jeevasethu, blood donation camps
	Means to ensure appropriate practices in place for dealing with hazardous substances	Yes



REVA University launched JEEVA SETU, the Medical Ventilator on April 25, 2020 as a lifeline and contribution from REVA University to aid the fight against COVID by the nation. Dr. P. Shyama Raju, Chancellor of REVA University in a quiet and low profiled meet unveiled

the ventilator releasing it to the cause of fighting Corona. Amidst the resident staff in the campus at Saugandhika, the Open Air Theatre of REVA and practicing complete social distancing and with safety and security measures like masks and gloves, the

Chancellor, Dr P Shyama Raju unveiled the ventilator. REVA University is a young vibrant University known for its passion for innovation and research and out of the box ideas and thoughts.....be it in Jagruti...towards electoral awareness in its first phase,



towards global warming in its second phase and towards COVID in its third phase. All these efforts of the University have been with one purpose in mind, social outreach and responsibility to the community. The University has never hesitated to support any social cause and has left no stone unturned to ensure that a helping hand is always extended to the society at large. Students have always been the central point of all these activities of the University for the Chancellor of the University, Dr P Shyama Raju strongly believes that youth power is what will drive such noble causes. COVID has hit us all and the most hit amongst us is the education domain for it has affected the youth and the learners in big way, leaving them anxious about their future. However, REVA has not stepped back in this endeavour either as they

went complete online supporting all their students in every way possible or remote instruction and assessment has been key focus for REVA. COVID also got the University garner their strength and energy as they were quick and on their toes to ensure that sanitizers were prepared in-house and supplied free of cost to those in connect, community workers, housekeepers and their families and by large the entire REVA community. The REVA NEST got together and prepared face shields, the masks and supported the community, while the team of research minded faculty went ahead and submitted proposals to the Government sharing ideas and innovative thoughts on partnering with the Government. Students and faculty got together and published research papers as they shared their research thoughts and findings through various

publications. When the PM called all scientists to get together and work on innovative modes of building scientific power and support, at REVA, a team of faculty members got together an affordable model of a Medical ventilator ---JEEVA SETU, the launch of which is today and so we are here in the campus. The launch of JEEVA SETU goes to prove the strength of the University and its capacity for innovation in a short span of time.....and who is the man behind this visionary thinking, a man known for his social commitment, a giver and an educationist who has made a difference to society....Dr P Shyama Raju, Chancellor, REVA University.....as he talks to us about the making of Jeeva Setu and how REVA University has transformed as an E-Varsity, ready for the challenges of the students.

### COVID-19 FACE SHIELD

REVA NEST Incubate Drona Automations prepared a COVID 19 FACE SHIELD with easily available materials within a fraction of seconds (DIY) out of

materials available at home. A quick and easy giveaway project for the masses in India Important link: [https:// youtube/ Ac8oA0BJgG0](https://youtube/Ac8oA0BJgG0) AISHE

CODE:C-0725 UIIC REVA University organized and conducted an Fight Corona IDEathon to demonstrate ideas of various students across the

country and select, facilitate the same to be converted into viable products in order to help

during the COVID-19 crisis. 12 students attended the session for the same as a part of 4 teams. Important

link: <https://www.facebook.com/REVAUIIC>

**REVA UNIVERSITY** | **INSTITUTION'S INNOVATION COUNCIL** | **MHRD'S INNOVATION CELL**

## Fight Corona IDEathon

Organized by REVA NEST & IIC

Fight Corona IDEathon: an online ideathon is an initiative jointly organized by REVA Innovation Council & NEST incubator in the endeavor to scout for accessible and affordable technological solutions that can control the rapid spread of infection, ease the mounting pressure and ensure a quick return to normalcy

**Challenges and problem statements can be in 9 different categories such as -**

- Personal Hygiene & Protection
- Awareness, Preparedness & Responsible Behavior
- Medical Systems - Diagnostic & Therapeutic, Screening
- Testing & Monitoring - Devices & IT/Digital/Data Solutions
- Protecting Most Vulnerable Groups
- Community Task Forces/Working Groups
- Remote Work & Remote Education
- Social Distancing
- Stabilizing Affected Businesses and the Open Category where one has the flexibility to choose and solve their own challenges.

Problem Statements of high magnitude soliciting innovative technological solutions like the design of reusable/washable masks, a system that can disinfect currency notes/coins, mobile applications with an ability to provide right reliable and authentic information to curb infection and the spread of panic, a non-invasive diagnostic kit, alternate solutions for ventilators to treat patients who face chronic breathing problems, Storage kits to collect test samples from homes and transport them to laboratories are put forth for student innovators, educators, researchers, professionals and startups to ideate and innovate feasible products.

Last date to register and submit application: **2<sup>nd</sup> April 2020**

Selected Ideas will be supported with incubation facility at **REVA NEST** and suitably awarded.

To register & submit IDEAS: <https://forms.gle/pCF1wGbkQnF2qwp8>





**SDG-4 EDUCATION**

The program may include provisions for supporting primary and secondary schooling under Right To Education Act, ensuring access to quality early childhood developments, care, skill based vocational trainings etc., Universities may require introducing more and more advanced features of learning including enhancing the chances of students in

getting exposure to national and international experts in concerned field of education. The parents of the students, who reside in the conditions of poverty, usually have either basic literacy skills or no education at all, are not able to provide any assistance or guidance to their children at home. Hence, they usually depict lower academic performance. On the other hand, children who belong to well to do families, have educated parents, they are able to arrange for private tuitions and provide all kinds of assistance to their children, hence, they are able to perform well in academic

concepts and examinations. The students, who are residing in the conditions of poverty are more likely to face difficulties in understanding academic concepts, as compared to children, who belong to wealthy families. In rural areas, when parents go to work, they expect their older children, especially girls to take care of their younger siblings, hence, they get compelled to give up their education. The home atmosphere, financial resources, occupation and status of the families determine the level of education one can get.

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	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	
	Activity	Status
	Research related to elementary education	Yes- 541 nos
	Research related to adult learning's	Yes
	Research related to early dropouts due to families and parental behaviour	Yes, planning for Skill Enhancement Programs for dropouts
	Research related to early dropouts due to exposure to toxins /fear of insecurity/ harassments	Yes, monitored by Anti-sexual harassment cell and anti-ragging cell

Research related to early dropouts due to food insecurity	No
Research related to early dropouts due to reasons of parent employment	Yes
Research related to early dropouts due to health issues	Yes
Research related to early dropouts due to child care needs	Yes
Policy to provide access and full participation in the university to vulnerable, disadvantaged people	Yes
Policy to provide access and full participation in the university to indigenous and people experiencing financial difficulty	Yes
Access to educational resources for non-students	Yes –Education on Wheels
Specific lectures or courses for the community	Yes
Vocational trainings for non-students	Yes
Policy to ensure that these activities are open to all, regardless of ethnicity, religion, disability, immigration status or gender	Yes
Policy of inclusive education, is it adopted or not	Yes



**SDG-5 WOMEN**

This may include programs to ensure access to basic social, political and economic rights for

women. These may further include dealing with indicators of gender gap index like economic participation and opportunity, educational attainment, health and survival and political empowerment of women. Adult literacy programmes may be arranged to reach women, who have not obtained the opportunity to attend schools at an earlier stage. This kind of

education can be provided in a variety of forms, not only by the arrangement of literacy classes, but incorporated with other programmes such as, credit, income generating, health and so forth. This promotion of learning is required for reasons of empowerment and social, economic and political involvement, legal awareness and leadership training etc.

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	Achieve gender equality and empower all women and girls	
Activity		Status
Research related to gender equality		Yes- 11 nos
Policy to ensure gender equity at workplace		Yes – Equal opportunity in employment/ labor contract etc.
Chances for women in university leadership positions		Yes – Present Controller of Examinations and Pro VC are women. Many Heads of Department are women.
Chances for women in senior academic roles		Yes- As above.
Policy to ensure pay equity irrespective of gender		Yes- Pay with respect to position and not with respect to gender.
Childcare in campus		Yes, Creche with all facilities available
Workplace flexibility for women		Yes
Participation in national campaigns for preventing women atrocities		Yes, routed through Unnathi, Women Forum, Women Grievance and Redressal Cell
Commitment & system for reporting sexual assaults taken place in the campus		Yes, Anti Sexual Harassment Cell, Women Grievance and Redressal Cell
Maternity and paternity policies		Yes, Maternity leave for 6 months and Paternity for 5 days
Policy protecting those reporting discrimination		Yes, Women Grievance and Redressal Cell, Student Redressal Cell
Transgender policy		Yes



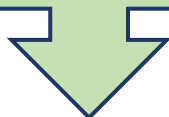
**SDG-6 WATER & SANITATION**

This may include programs for ensuring water security for domestic, irrigation, agriculture and industry applications and sustainable management

of rivers and water bodies in order to retain the ecological flows. These further ensures access of water and sanitation to all. Swachh Bharat Mission - Urban (SBM-U) also may come under this. An educated person is able to fulfill the basic requirements of housing, food and nutrition, civic

amenities, health, cleanliness, education and other requirements. They generate awareness amongst themselves to create means to meet their basic needs and requirements like safe drinking water and hygienic sanitation facilities.

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	Ensure availability and sustainable management of water and sanitation for all	
Activity		Status
Research related to water and sanitation		Yes – 58 nos
Free drinking water for students, staff and visitors		Yes
Developing management and guardianship plans for on-campus waterways		Yes
Developing management and guardianship plans for surrounding waterways		Yes, Jagruthi initiative
Developing management and guardianship plans for on-campus biodiversity and ecosystems		Yes, Eco club, Green audit
Fully operational drainage system with appropriate drainage trap is available or not		Yes
Reuse of treated water		Yes , for watering of plants and lawns
RWH- storage and use		Yes
Any program for net zero discharge campus		Yes



**SDG-7 ENERGY**

This may include programs for ensuring access to energy in the Business As Usual (BAU) scenario that is, maintaining a fossil fuel dominant energy mix. This further demand enhancing production

capacity of the usual energy sources, and also, moderately increasing the share of renewable energy in order to reduce the fossil fuel component. Renewable energy has become a crucial factor for circular economies, sustainable development, and the environment given the limited non-renewable energy reserves and global environmental degradation mainly resulting from non-renewable energy use. The

positive impact of educational attainment on renewable energy use can be credited to various factors, such as innovation, technological development, economic growth, and institutional and social development. In the meantime, it need to be seen that, India may also opt for an energy mix with net-zero emissions by 2050, for which, by 2030 it must reduce the fossil fuel energy component from 50 percent to 27 percent.




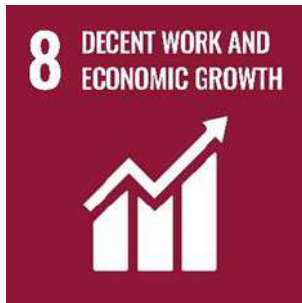
In order to address the energy security needs of the country along with mitigating carbon emissions, our country has enhanced its targets for

renewable energy considerably. In addition to the program of raising renewable energy productions, installation of transmission & distribution

infrastructure, and further providing access to clean cooking gas also becomes prominent.

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	Ensure access to affordable, reliable, sustainable and modern energy for all	
Activity		Status
Research related to affordable and clean energy		Yes – 121 nos
% usage of solar energy for power requirements		50 %
Policy on compliance of ECBC for new buildings		Yes
Plans to reduce carbon emissions		Yes
Assistance for start-ups that foster and support a low-carbon economy or technology		Yes, REVA UIIC



**SDG-8 ECONOMY**

In the case of our country, MSMEs are of prime

importance in our economy. MSMEs are Micro, Small and Medium Enterprises that engage in the service sector or the manufacturing, processing, production or preservation of goods. For a sustained, inclusive and sustainable economic growth, India will require to enhance its MSME sector and other labour intensive

sectors. It would require growth strategies that generate employment opportunities for its youth. In addition to this, for India to ensure sustainable economic growth, it needs to look at costs of resource efficiency and promoting sustainable production systems.

There is a direct correlation between Higher Education and Human Resource Development. Capacity building requires resources – financial, natural and most importantly human. Development activities require work force – semi-skilled, skilled and specialized. It can be ascertained that an evolved and broad-based higher education system is indispensable to economic growth and development.



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most importantly human. Development activities require work force – semi-skilled, skilled and specialized. It can be ascertained that an

evolved and broad-based higher education system is indispensable to economic growth and development.

	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	
Activity		Status
Research related to economic growth and employment		Yes – 143 nos
Proportion of students getting work placements		Yes, 60%
Providing appropriately positioned and supported scholarship and financial assistance schemes for students in need		Yes
Supporting creativity and innovation through a culture of acceptable risk-taking, providing the appropriate space and process for ideas to flourish		Yes, REVA Incubation Centre through REVA UIIC
Monitoring employment outcomes and academic workload management		Yes
Implementing socially and environmentally responsible procurement policies and procedures, affecting up and down of the supply chain		Yes
Critically examining the role of economic growth		Yes
Issuing only green bonds where bonds are required		No



**SDG-9  
INFRASTRUCTURE**

Infra-structure and development is always a top agenda for India, considering the current global economic

dynamics as well as our estimated domestic growth imperatives. Altogether, the investments in economic infrastructure may extend to the services in power, transport [road, rail, water (seaports), air (airports)], water supply, telecommunications and fuel supply etc.

Goal 11 calls for the sustainable development of cities and human settlements. Urbanisation in India has been on the rise. Population residing in urban areas in India,

according to 1901 census, was 11.4 per cent. This count increased to 28.53 per cent according to 2001 census, and crossing 30 per cent as per 2011 census, standing at 31.16 per cent. People migrate to cities in the hopes of finding better economic opportunities, access to a larger range of public amenities and services, and prospects of a better life than in rural areas. Unfortunately, a large section of the population is marginalised, resorting to dwelling in slums without

access to basic amenities such as clean water, sanitation and proper housing. Congestion in Indian cities is clearly visible, particularly in metropolitan cities.

This necessitates proper urban planning with provisions for necessary urban infrastructure and services, including urban water supply, urban transport, sewage, solid

waste management, roads, traffic control, maintenance of public spaces etc.

	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
Activity		Status
Research on industry, innovations and infrastructure		Yes – 272 nos
Testing and piloting innovative solutions to improving operations inside the campus		Yes- Sewage block removal robot
Policy on commitment of building sustainable and resilient infrastructure that supports wellbeing and minimizes environmental impact		Yes, Eco-friendly campus, Solar powered Administrative block
Policy for ensuring retrofits of existing buildings to increase resource efficiency and adopt clean and environmentally sound technologies		Yes, as mentioned above
Committing to sustainable and reliable ICT (Information and communications technology) processes and services		Yes
Number of patents from any source that cite research conducted by the university		Yes, published (REVA IPR cell)
University spin-offs that are defined as registered companies set up to exploit intellectual property that has originated from within the institution		No
Ability of the university to generate new research income from industry and commerce.		Yes, Industry sponsored research



**SDG-10 INEQUALITY**

Inequality is multi-faceted in nature. There is inequality in income; inequality in educational attainment, inequality in

health status, inequality in employment, inequality in access to food, inequality in access to water, inequality in access to social security, inequality in labour, inequality in wages, inequality in chances of employment, inequality in working hours and in general access to opportunities and choices. These different aspects of inequality are interlinked; improved access to water

and sanitation may help reduce inequality in health outcomes, improved educational attainment may help people find better jobs and reduce the inequality in employment and incomes, and so on. So, the achievement of Goal 10 will be closely linked to the achievement of all other goals.

	Reduce inequality within and among countries	
Activity		Status
Research related to inequalities		Yes – 10 nos
Students from developing countries		Yes
Measures against discrimination		Yes, Anti Ragging policy in place. Helpline Nos posted in the campus for safety of students
Mentoring, counseling or peer support programmes aimed at students and staff from under-represented groups		Yes, strong mentoring system and Counseling
Accessible facilities for people with disabilities		Yes, wheel chair, ramps, etc
Accommodation policy or strategy for people with disabilities, including adequate funding		Yes
Policy for managing the pay gap between the highest and lowest paid staff		Yes, normalization of Salary by HR Dept
Providing a supportive, inclusive and safe working and learning environment for people from financially and socially disadvantaged, different backgrounds, people from rural and regional areas, people with disabilities, women in the workplace, people of diverse genders and sexualities and people from diverse culture, faith, communities, religion, caste, creed etc.		Yes



**REVA University launches 'One Student, One Tree' campaign**

A green initiative of REVA to make students ecologically aware

In August 2021, REVA University launched 'REVA Vanamahotsava', a novel initiative of REVA University to plant 15,000 saplings in the state. Under this initiative, the institution launched 'One Student, One Tree' campaign, which aims to build a clean and green environment with active involvement of students. The initiative, with support

from students and faculty is REVA's commitment towards environment conservation and reduction of global warming. Additionally, the AICTE recommends that every institute conduct should plantation drive.

**Objective**

To conduct tree plantation drive in school and villages under 'One Student, One

Tree' campaign by REVA University

**Mission**

Every student of REVA University will plant one sapling each. Students should nurture these plants at least during the first two years after planting.

**Vision**



To plant 15,000 saplings in 2021-22, and to plant one sapling per every new student who takes admission at REVA University from the AY 2021-22 onwards

### **Introduction**

REVA University advise students to plant saplings and young trees. REVA University aims to make students ecologically aware about issues concerning global warming, water conservation, reduction of carbon footprints and importance of sustainable living.

### **Responsibilities of Schools under the leadership of Director**

- Each School should plan tree plantation drive based on the total number of students present in the individual school.
- The School is responsible for identifying the venue, saplings and maintenance of trees for 3 Years
- Each School should aim to plant one sapling per student
- Each School can plant two trees per staff.

- Share the images and videos of planted saplings with the central team.
- The growth of the plants should be recorded for a duration of 3 years.
- Should submit the progress report of one Month, quarterly, Half Yearly & Year with the central team.
- Each School can plan plantation drive across Karnataka & other states.

### **Responsibilities of students**

- Share the photos of planted sapling with mentors, who will share the images with the central team.
- The central team will suggest the sapling specie and students can choose the location
- Students to strictly wear REVA T-shirt and ID card in all the photos during plantation.
- Students to share a message via 1 min video clip.
- Growth of the plant to be monitored

and recorded (size, features, etc) and to be shared with respective mentor for 3 years' duration.

- Student is responsible for identifying the venue, saplings and maintenance for 3 Years.
- If any student is unable to plant a sapling due to some reasons, the central team will plant a sapling and nurture it for 3 years, at the cost of Rs 1,500. Students can sponsor the maintenance of a sapling and it will be maintained under the student's name.

### **Responsibilities of Central team**

- Central team to inaugurate the Green Club
- Central team will monitor & record tree plantation drive conducted by each School through a digital application.
- If any School is not able to achieve the given target, the central team will help the School

meet its target.

- On 15th August 2022, the best grown tree owner and mentor will be recognised and awarded.
- Central team is responsible for opening a tree plantation account.

**Process adopted for planting saplings:**

1. We make sure that we apply good weed-excluding mulch in a circle about a meter wide around the tree.
2. Next, we plant tree in making a mix of two thirds of soil and one third of compost.
3. We pack slightly at three places around roots so as to fix the plant in soil.
4. We water copiously (All days while first week if necessary).
5. We lay cardboards on the ground on circle around the seedling and cover in organic matter such as shredded bark (4 cm thick).
6. We also place a plastic bottle over the young plant. The best is

to take a 2 litre mineral water bottle, to cut the bottom and top of the bottle to make a tube and then push it lightly into the soil around the tree. The bottle will mark the tree and also give protection.

**Why plant a young tree rather an adult tree?**

If the project is to plant a tree for age, it's better to plant a very young tree (2-3 years) in maximum. Of course, planting small trees does have its problems, the main one being that it is all too easy to lose trees amongst the surrounding growth. It's necessary to wait several years before to become adult, well-proportioned tree, according to the species.

But there are many more advantages:

The tree will be more vigorous and more resistant in adult age. Moreover, the roots can settle better in the site and in the soil, but with mycorrhizal fungi, symbiosis which allow a better growth than fertilizers and show better resistance.

**Plant as a network, plant under the wind, the trees and the climatic changes**

**Plant as a network**

It is possible to plant three young trees of same species in triangle with or without shafts. Trees will grow, their roots will make a network of roots and be more efficient to explore soil around. Next, it is possible to cut two trees and to keep the third, which will benefit by the whole roots system (of three trees) in this case.

**Plant under wind**

Wind serves a very important function for in the growth of young trees. Stimulus of being swayed by wind will actually encourage trees to develop stronger trunk and firmer root system. Trees that are given support of stakes or protection of a tube are much more likely to blow down in later years. In general, we have found that it pays to give young tree a fairly hard time of it-not hard enough to damage it, but certainly hard enough to ensure that you are growing a tough tree that will be with you for many years to come. Such a tree will grow more slowly in its very early years but will grow stronger with time.

**Trees and climatic changes**

Due to climatic changes, extreme events will become more frequent

with more storms and more heat waves. Trees planted young and with an optimal

method can resist better to such extreme events.



**SDG-11 HABITATION**

It includes programs for making cities inclusive, safe, resilient and sustainable like housing for all, development and

planning of cities, efficient transport systems, public spaces and other components of urban infrastructure utilities developed optimally, effective implementation of disaster management plans including emergency measures dealing with natural calamities and environmental hazards etc. Government of

India's ambitious plans for sustainable urban development, the AMRUT and smart cities programmes, PMAY Housing for all (urban), Basic Services for Urban Poor (BSUP), Integrated Housing and Slum Development Program (IHSDP) etc. come under this category.

Universities need to undertake many transformations in practices of consumption, production, investment, housing, and interacting to implement the SDGs. Such novel practices can be fostered, tested and shared across campuses as evidenced by the many campus experiences such as "living labs".

The urgency of addressing climate change, and now the COVID-19 crisis, showcasing how interconnected the environment, our prosperity and social wellbeing do compel the Universities across the world to greatly expand

society's capacity to solve complex challenges which has never been more important or more urgent than nowadays. What students learn at their university will have a direct impact on them as citizens, professionals, and consumers as well as on

businesses they will work for or create. Universities need to help students develop the knowledge, skills, attitudes and values they will need to address global challenges as responsible professionals and citizens.

	Make cities and human settlements inclusive, safe, resilient and sustainable	
	Activity	Status
	Research related to sustainable cities to keep up the tradition of/and communities	Yes – 32 nos
	Public access to university libraries	Yes , monitored by Security
	Public access to open and green spaces of the university	Yes , monitored by Security
	Public access to artistic events or concerts	Yes , monitored by Security
	Recording and preserving of local heritage	Yes

Work with local authorities to address planning issues, including the provision of affordable housing for local residents	No
Providing safe and affordable on-campus housing for students and staff	Yes , hostel, staff quarters
Implementing best practice pollution control and waste management processes and policies	Yes – Biogas, Vermin compost, Organic waste converter, STP etc.
Provision of sustainable transport system including public transport and bike paths	No



**SDG-12 CONSUMPTION**

It includes programs for developing low carbon strategies, comprehensive

waste management practices, technology advancements and R&D for cleaner resource efficient production systems.

Sustainable Consumption and Production (SCP) is a pre-requisite for the world's development to remain within the safe limits of growth and planetary

boundaries. It is fundamental in order to achieve sustainable development. [All facts from Planning Commission Report (Planning Commission, GoI, 2014)] India emitted 1,728 million tonnes CO2 equivalent of GHGs, making it the sixth largest emitter in the world. India is, however, conscious of its global

responsibility, and in December 2009, it announced that it would reduce the emissions intensity of its GDP by 20 to 25 per cent, from the 2005 levels, by the year 2020. This voluntary commitment, which India has made to the international community, shows India's resolve to ensure that its growth process is sustainable and based on low carbon principles. India's per capita consumption is still fairly low as compared with the developed economies. India sees sustainable consumption as an instrument for social and environmental gain. On one hand it will prevent the excessive burden on natural and environmental resources, while on the other it will also be a step towards a more equitable society. Sustainable consumption is a matter of great concern, with limited resources being wasted by a certain section of the world while depriving others of their basic necessities. The cumulative costs of low carbon strategies have been estimated to be around INR 62.5 lakh crores (USD 992 billion), over the two decades between 2011 and 2030. If these costs were borne entirely by

domestic resources, the cumulative loss in output (GDP) between 2011 and 2030 would be INR 100 Lakh crores (USD 1,595 billion). India is striving to constantly improve resource and energy efficiencies in production patterns. India sees a leadership role that it can play across the world to promote and support countries, especially in the Global South in choosing sustainable patterns of production.

In the year 2007, India's CO<sub>2</sub> equivalent emission of 1904.73 million tonnes was primarily due to fast growing sectors like cement production (growing at 6 per cent), electricity generation (growing at 5.6 per cent) and transportation (growing at 4.5 per cent). Analysis of CO<sub>2</sub> emission across sectors reveals that 47.81 per cent of this was from the electricity generation, while 27.11 per cent was from manufacturing in the industrial sector (iron and steel, and cement production constituted 16.49 per cent of CO<sub>2</sub> emissions). CO<sub>2</sub> emission from transport sector was 138.9 million tons, i.e., 9.27 per cent of country's total CO<sub>2</sub> emission in the year 2007. The residential sector

accounted for 49 per cent of the CO<sub>2</sub> emissions from other energy related activities, indicating a potential for reduction of emissions through the use of more energy efficient domestic appliances. Measures, which reduce emissions intensity, impact the economy in a variety of ways. Such mitigation efforts, however, do not come cheap. They require additional investment, which in turn reduces investment available for other needs. An assessment of economic costs and benefits is, therefore, important. Energy efficient processes can increase the profitability of many value added activities, while also facilitating structural changes in the economy. This not only makes an economy more productive, but also sustains economic growth by relaxing the energy constraints in the long run. It is important to understand the macro-economic and inter-sectoral implications of different mitigation alternatives to ensure that the low carbon strategies being recommended are mutually consistent with each other.



	Ensure sustainable consumption and production patterns	
Activity		Status
Research on responsible consumption and production		Yes – 8 nos
Policy to reduce food wastes		Yes
Policy on use of plastic items		Yes
Policy on use of disposable items		Yes
Evidence to prove that all the above policies (plastic/ disposable) apply to outsourced suppliers		Yes, recycling of waste (food, papers etc)
Incorporating sustainability and ethical considerations into purchasing policies, procedures and activities		Yes
Publication of university sustainability report (stand-alone)		Yes, Green audit report



**SDG-13CLIMATE**

It includes programs and activities envisaged under eight identified missions that are required for adapting to climate change, mitigation and climate planning in the major sectors of the economy.

India is highly vulnerable to climate change with an extensive coastline and

the massive glaciers that serve as life sources, and cap the country. The country has already faced frequent disasters such as cyclones on the east coast of Odisha, floods in Jammu & Kashmir and drought in Central India. The diverse nature of disasters requires varied capacity and responses. The country needs to invest in protecting the lives of millions already impacted due to low development on parameters of health services, income options, education opportunities and dependence on weather-sensitive sectors for livelihoods. Considering the vast poverty in the country and poor being

most vulnerable to environmental repercussions, India would require massive investment on climate change. This would ensure that adequate climate adaptive actions are taken to minimize human and resource loss due to climate disasters. It is therefore India's priority to strengthen adaptation measures. This goal deals with policy and development planning in alignment with climate change action. India has prepared a comprehensive National Action Plan on Climate Change (NAPCC) and State Action Plans on Climate Change (SAPCC)



with a view to achieve sustainable development with a focus on climate change. The assessment in this goal only comprises of the finance required for processing development planning for climate change. Climate change also has additional linkages with other goals. Since climate change is an impact of the emissions caused by our production

and consumption systems, this goal is linked with goals on food security (Goal 2) , energy access (Goal 7), industries and infrastructure (Goal 9) and urbanization (Goal 11). The strategies and processes under these goals will have implications on the achievement of this goal. Integrating climate change measures into national policies, strategies and planning requires

appropriate training and capacity building of government officials at all levels. These training exercises would equip government bodies with knowledge about climate change, information about adaptation and mitigation measures for various sectors, and the skills required to incorporate climate concerns into planning processes.

		Take urgent action to combat climate change and its impacts
Activity		Status
Research on climate change related topics		Yes – 61 nos
% of low carbon energy use		Yes
Promoting increased use of sustainable transport		Yes
Courses on climate change		Yes, Environment Science, Organic Farming etc
Community based education/ aware programs on climate change		Yes- Vanamahotsava, Jagruthi
Action plans to address climate change disasters		Yes
NGO collaboration on climate change adaptation		
Any expo conducted on sustainable food service habits reducing carbon emissions		No
Any newsletter publication on climate change/ action		Yes, Green audit report
Commitments for carbon neutral university		Yes



REVA VANAMAHOTSAVA  
School of Commerce and Management and Basic Sciences



The NSS Unit, REVA University in association with School of Commerce and Management and Basic Sciences of REVA University had organized "Tree Plantation Drive" in Kote Prasanna

Anjaneya Swamy Temple, Srinivas Nagara (Byappanahalli) Village, Satanur Grama panchayath.

Planted around 300 saplings namely Alstonia plant/Saptaparni, Pongamia pinatta, Mahagani, Sampige Neem on 26<sup>th</sup> August 2021 from 9.00 AM to 12.30 PM. Around 110 students and 30 staff members from different Schools of REVA University, participated in this event. A noble initiative was undertaken under the banner of “REVA VANAMAHOTHSVA” on 26<sup>th</sup> August 2021 to plant 300 saplings of native tree species by the faculty and staff members of different Schools of REVA University on account of 75<sup>th</sup> Independence celebration “Azadi ka amrut mahotsav”. The saplings were planted in the vicinity of Srinivas Nagara (Byappanahalli) Village, nearby REVA university campus.



The staff members and students were participated in the drive enthusiastically and helped each other in planting the saplings. All the saplings were planted in the Srinivas Nagara (Byappanahalli) Village in temple area and government road. Staff members and students of REVA University also took an oath to look after the planted samplings, plant more and more trees and encourage others to do the same.

Importance of Tree Plantation:

Trees are important for us to live in. Tree plantation alludes to planting trees at a spot.

- Tree plantation has many advantages on the earth and our wellbeing. We as a whole inhale oxygen to live, and trees are the main characteristic source of oxygen.

- Tree plantation guarantees that the supply of oxygen never ends.
- Tree plantation additionally urges vegetation to develop. Birds make their homes in the trees, subsequently adding to the beauty of nature.
- Birds additionally scatter seeds and pollen on the ground, resulting in the development of different plants. So, tree plantation expands the bio-diversity of a specific region.

On behalf of NSS unit, we would like to thank our beloved Chancellor, Dr. P. Shyama Raju sir for providing all facilities and support to conduct this program. We also thank Vice-Chancellor Dr. M. Dhananjaya, Registrar Dr. Ramesh N, Dr. Shubha A Director, School of Commerce & Management Studies Dr. Kiran Kumari Patil, Director UIC, Dr K S Narayanaswamy, Director , School of Mechanical Engineering, Col.Nataraj Kuppasad, Director (Admin) ,Mr. Lakshmanan G for their motivation, help, and support. We would like to thank all the Deans, Directors, Vertical heads, NSS Coordinators, Teaching and non-Teaching staff of various Schools for cooperating to organize the event. We thank Shekar Raju K, Deputy General Manager Construction & Maintenance Department, Mr. Srinivas, Mr. Ravi Palani and Mr. Anup from Media center, Mr. Ravi and Mr.Manjunath from REVA Independent PU colleges, Sanjanagara Campus, Mr. Lakkanna, Yoga Instructor, Mr. Devanand Bihari Team, Prof. Anil Kumar V, from School of ECE and Shivasharanappa. We also thank construction workers and Housekeeping staff of REVA University for encouragement towards the school and university's social activities. Coordinators for this event were Dr. Veerbhadrapa T, Dr. Uday Kumar K N, Dr Deepak C S



## REVA VANAMAHOTSAVA School of Mechanical Engineering



The NSS Unit, School of Mechanical Engineering, REVA University in association with State NSS Cell, Karnataka, and The Biking Community of India had organized “Tree Plantation Drive” in Mittiganahalli Village, Kannur Grama panchayath.

Planted around 700 trees namely Pongamia pinatta, Mahagani, Halstonia, Tabebuia Rosea, Felicia, Silver, Neem on Sunday 8<sup>th</sup> August 2021 from 10.00 AM to 3.30 PM. Around 62 staff members from School of Mechanical Engineering of REVA University, participated in this event.

A noble initiative was undertaken under the banner of “REVA VANAMAHOTSVA” on 8<sup>th</sup> August 2021 to plant 700 saplings of native tree species by the faculty and staff members of the School of Mechanical Engineering under the guidance of their Director, Dr. K S Narayanaswamy, on account of 75<sup>th</sup> Independence celebration. The saplings were planted in the vicinity of Mittiganahalli Village, nearby REVA university campus.

The staff members were participated in the drive enthusiastically and helped each other in planting the samplings. All the saplings were planted in the Mittiganahalli Village government roads. The Biking Community of India along with the staff members of REVA University also took an oath to look after the planted samplings, plant more and more trees and encourage others to do the same.

Highlights of programme:

The importance of trees in purifying the air and maintaining the ecological balance is well-known

- Staff members understood importance of tree plantation and types of trees which are beneficial to maintain clean environment.
- Staff members realized impact of air pollution on society.

on behalf of the School Mechanical Engineering and NSS unit, we would like to thank our beloved Chancellor, Dr. P. ShyamaRaju sir for providing all facilities and support to conduct this program. We also thank Vice-Chancellor Dr M. Dhanamjaya sir, Registrar Dr. Ramesh N, Dr. Kiran Kumari Patil, Director UIIC for their motivation, help, and support. We would like to thank our beloved Director Dr. K S Narayanaswamy for cooperating to organize the event. We thank Mr. Shekar Raju and Mr. Ravi Palani Team. We also thank the teaching and non-teaching staff of Mechanical Engineering for encouragement towards the school and university's social activities. Coordinators: were Prof. Varadaraj K R & Prof. Vinod R.



**“REVA VANAMAHOTSVA”**

**Report on**

**“Tree Plantation”**

**School/Department:** National Service Scheme (NSS)/School of Mechanical Engineering

**Venue:** Mittiganahalli

**Date:** 8<sup>th</sup> August

**Year:** 2021

### Description of Event:

**The NSS Unit, School of Mechanical Engineering, REVA University** in association with **State NSS Cell, Karnataka and the Biking Community of India** had organized “**Tree Plantation**” in Mittiganahalli Village, Kannur Grama panchayath.

Planted around 700 saplings namely **Pongamia Pinatta, Mahagani, Halstonia, Tabebuia Rosea, Felicium, Silver, Neem** on **Sunday 8<sup>th</sup> August 2021** from **10.00 AM to 15.30 PM**. Around 62 staff members from School of Mechanical Engineering of REVA University, participated in this event.

A noble initiative was undertaken under the banner of “**REVA VANAMAHOTSVA**” on 8<sup>th</sup> August 2021 to plant 700 saplings of native tree species by the faculty and staff members of the School of Mechanical Engineering under the guidance of their Director, Dr K S Narayanaswamy, on account of 75<sup>th</sup> Independence celebration. The saplings were planted in the vicinity of **Mittiganahalli Village**, nearby REVA university campus.

The staff members were participated in the drive enthusiastically and helped each other in planting the saplings. All the saplings were planted in the Mittiganahalli Village government roads. **The Biking Community of India** along with the staff members of REVA University also took an oath to look after the planted samplings, plant more and more trees and encourage others to do the same.

### Highlights of programme:

- The importance of trees in purifying the air and maintaining the ecological balance is well-known
- Staff members understood importance of tree plantation and types of trees which are beneficial to maintain clean environment.
- Staff members realized impact of air pollution on society





Coordinators: Prof. Madhu B P Prof. Varadaraj K R Prof. Vinod R





## Report on

### “Tree Plantation”

**School/Department:** National Service Scheme (NSS)/School of CSE/C&IT

**Venue:** Haradi village, H-Cross, Sidalagatta, Chikkaballapura

**Date:** 08<sup>th</sup> December

**Year:** 2021

#### Description of Event:

Greeting of the Day!

The NSS Unit in association with School of Computer Science Engineering and Computer & Information Technology, REVA University was organized “REVA VANAMAHOTHSVA” A Tree Plantation Drive in Haradi village, H-Cross, Sidalagatta, Chikkaballapura (47.1 Km from REVA University) on 08.12.2021 at 9.00 am to 3 pm.

Planted 500 saplings with 110 students and 30 staff members from **School of Computer Science Engineering and Computer & Information Technology REVA University** along with **NSS volunteers** had participated in this event.

The staff members and students were participated in the drive enthusiastically and helped each other in planting the saplings. All the saplings were planted in the Haradi Village in Government forest land.

Staff members and students of REVA University also took an oath to look after the planted saplings, plant more and more trees and encourage others to do the same.

Planted saplings uploaded in **REVA Tree Plantation Mentoring System**

#### Importance of Tree Plantation:

- Trees are important for us to live in. Tree plantation alludes to planting trees at a spot. Tree plantation has many advantages on the earth and our wellbeing. We as a whole inhale oxygen to live, and trees are the main characteristic source of oxygen.
- Tree plantation guarantees that the supply of oxygen never ends.
- Tree plantation additionally urges vegetation to develop. Birds make their homes in the trees, subsequently adding to the beauty of nature.
- Birds additionally scatter seeds and pollen on the ground, resulting in the development of different plants. So, tree plantation expands the bio-diversity of a specific region.





Coordinators: Prof. Madhu B P Prof. Prabhuraj Prof. Sunil Manoli Prof. SurendraBabu Prof. Lalitha L A

## “REVA VANAMAHOTVA”

### Report on

### “Tree Plantation”

**School/Department:** National Service Scheme (NSS)/School of Mechanical Engineering

**Venue:** Srinivas nagar Satanur Grama panchayath

**Date:** 9<sup>th</sup> September

**Year:** 2021

#### **Description of Event:**

#### **Greeting of the Day!**

The NSS Unit in association with School of Electrical & Electronics Engineering, REVA University is organizing “REVA VANAMAHOTVA” A Tree Plantation Drive in Srinivas nagar (3 Km from REVA University) on 09.09.2021 at 9.00 am.

Planted around 150 saplings namely **Alstonia plant/Saptaparni, Pongamia Pinatta, Mahagani, Sampige Neem** on **9<sup>th</sup> August 2021** from **9.00 AM to 12.30 PM**. Around 60 students and 30 staff members from **School of Electrical & Electronics Engineering, REVA University** had participated in this event.

A noble initiative was undertaken under the banner of “**REVA VANAMAHOTVA**” on 9<sup>th</sup> September 2021 to plant 150 saplings of native tree species by the faculty and staff members of **School of Electrical & Electronics Engineering, REVA University** on account of 75<sup>th</sup> Independence celebration “**Azadi ka amrit mahotsav**”. The saplings were planted in the vicinity of SrinivasNagara (Byappanahalli) Village, nearby REVA university campus.

The staff members and students were participated in the drive enthusiastically and helped each other in planting the saplings. All the saplings were planted in the Srinivas Nagara (Byappanahalli) Village in temple area and government road. Staff members and students of

REVA University also took an oath to look after the planted samplings, plant more and more trees and encourage others to do the same.

#### Importance of Tree Plantation:

- Trees are important for us to live in. Tree plantation alludes to planting trees at a spot. Tree plantation has many advantages on the earth and our wellbeing. We as a whole inhale oxygen to live, and trees are the main characteristic source of oxygen.
- Tree plantation guarantees that the supply of oxygen never ends.
- Tree plantation additionally urges vegetation to develop. Birds make their homes in the trees, subsequently adding to the beauty of nature.
- Birds additionally scatter seeds and pollen on the ground, resulting in the development of different plants. So, tree plantation expands the bio-diversity of a specific region.



Coordinators: Prof. Madhu B P Prof. Doddabasappa

#### “REVA VANAMAHOTVA”

#### Report on

#### “Tree Plantation”

**School/Department:** National Service Scheme (NSS)/School of CSE/C&IT

**Venue:** Juttanahalli, Jaligegram panchayath, Devanahalli Taluk.

**Date:** 13<sup>th</sup> June

**Year:** 2022

## Description of Event:

### Greeting of the Day!

The NSS Unit in association with School of Computer Science organized “REVA VANAMAHOTHSVA” A Tree Plantation Drive in Juttanahalli, Jaligegram panchayath, Devanahalli Taluk. (22 Km from REVA University) on 13.06.2022 and 14.06.2022 from 10 am to 3 pm.

Planted 800 (380 Nos on 13.06.2022 and 420 Nos on 14.06.2022) saplings planted with 100 students and 20 staff members both the days from the School of Computer Science Engineering along with NSS **volunteers** had participated in this event. The staff members and students were participated in the drive enthusiastically and helped each other in planting the saplings. All the saplings were planted in the lake area of Juttanahalli, Jalige gram Panchayath, Devanahalli Taluk.

Staff members and students of REVA University also took an oath to look after the planted samplings, plant more and more trees and encourage others to do the same.

Planted saplings uploaded in **REVA Tree Plantation Mentoring System**

### Importance of Tree Plantation:

- Trees are important for us to live in. Tree plantation alludes to planting trees at a spot. Tree plantation has many advantages on the earth and our wellbeing. We as a whole inhale oxygen to live, and trees are the main characteristic source of oxygen.
- Tree plantation guarantees that the supply of oxygen never ends.
- Tree plantation additionally urges vegetation to develop. Birds make their homes in the trees, subsequently adding to the beauty of nature.
- Birds additionally scatter seeds and pollen on the ground, resulting in the development of different plants. So, tree plantation expands the bio-diversity of a specific region.

Coordinators: Prof. Madhu B P Prof. Prabhuraj Prof. Sunil Manoli





## “REVA VANAMAHOTSVA”

### Report on

### “Tree Plantation”

**School/Department:** National Service Scheme (NSS)/School of Applied and Allied Health Sciences

**Venue:** ITC Factory area near Sadarahalli Gate, Devanahalli, Bengaluru.

**Date:** 15<sup>th</sup> June and 21<sup>st</sup> June

**Year:** 2022

#### **Description of Event:**

#### **Greeting of the Day!**

The NSS Unit in association with School of Applied and Allied Health Sciences organized “REVA VANAMAHOTSVA” A Tree Plantation Drive in ITC Factory - near Sadarahalli Gate, Devanahalli, Bengaluru. (22 Km from REVA University) on 15-06-2022 and 21-06-2022 from 10 am to 3 pm.

Planted 850 (610 Nos on 15-06-2022 and 240 Nos on 21-06-2022) saplings planted with 150 students and 20 staff members both the days from the School of Applied and Allied Health Sciences along with NSS **volunteers** had participated in this event. The staff members and students were participated in the drive enthusiastically and helped each other in planting the saplings. All the saplings were planted in the **ITC Factory area near Sadarahalli Gate, Devanahalli, Bengaluru.**

Staff members and students of REVA University also took an oath to look after the planted samplings, plant more and more trees and encourage others to do the same.

Planted saplings uploaded in **REVA Tree Plantation Mentoring System**

### Importance of Tree Plantation:

- Trees are important for us to live in. Tree plantation alludes to planting trees at a spot. Tree plantation has many advantages on the earth and our wellbeing. We as a whole inhale oxygen to live, and trees are the main characteristic source of oxygen.
- Tree plantation guarantees that the supply of oxygen never ends.
- Tree plantation additionally urges vegetation to develop. Birds make their homes in the trees, subsequently adding to the beauty of nature.
- Birds additionally scatter seeds and pollen on the ground, resulting in the development of different plants. So, tree plantation expands the bio-diversity of a specific region.













Coordinators: Prof. Madhu B P Dr. Udaya Kumar K N Dr. Praveen Kumar K M  
Dr. Sreekanth R Dr. Mahendra K Dr. NM Guruprasad

## “REVA VANAMAHOTVA”

### Report on “Tree Plantation”

**School/Department:** National Service Scheme (NSS)/School of Legal Studies

**Venue:** Tanish Reddy Farm, Salivaram, Denkanikhotai Taluk, Krishnagiri District, Tamil Nadu.

**Date:** 15<sup>th</sup> July

**Year:** 2022

### Description of Event:

The NSS Unit, REVA University in association with the School of Legal Studies is organizing “REVA VANAMAHOTVA”-A Tree Plantation Drive in Tanish Reddy Farm, Salivaram, Denkanikhotai Taluk, Krishnagiri District, Tamil Nadu.

Planted 300 saplings on **Friday 15<sup>th</sup> July 2022** from **10.00 AM to 15.30 PM**. Around 40 Students and 10 staff members participated in this event.

Chief guest of the tree plantation Shri Nagaraj, Circle inspector, Denkanikhotai explained about importance of planting the tree and cyber crimes.

Guest of honor Range Forest officer, Hosur Shri Prakash spoke about one student – One tree plantation and different schemes through Forest office.

Shri Parthipan, DRFO, Dr Bharathi madam, Director, School of Legal studies Shri Raja Reddy, Senior advocate gracing the occasion

### Highlights of the program:

- Trees make air pollution-free.
- Trees provide us oxygen.
- Trees help in the cycling of seasons.
- Trees hold the soil tightly and prevent soil erosion.
- Trees provide us fruits, shelter, and woods
- Trees save us from the heavy rain, and scorching heat
- Trees help the Ayurved too as many medicines are made through leaves and bark of different trees.
- Trees and plants provide natural fragrances in the form of flowers and make the environment romantic and lovable.
- Trees also provide natural oils and rose water and also other spices which are used in cooking food.

These are the fewer advantages of the plantation of trees. There are many more advantages of the plantation. Trees observe harmful rays the Sun and provide us pleasant weather throughout the year and make our life comfortable with its gifts. The trees start the food chain in civilization as they are the first food provider.





Coordinators: Prof. Madhu B P Dr. Kumar J N Dr Munegowda C

**“REVA VANAMAHOTSVA”**  
**Report on**  
**“Tree Plantation”**

**School/Department:** National Service Scheme (NSS)/School of Legal Studies and School of Arts and Humanities

**Venue:** Mittaganahalli and Srinivaspura

**Date:** 22.06.2022

**Year:** 2022

**Description of Event:**

The NSS Unit, REVA University in association with School of Legal Studies and School of Arts and Humanities of REVA University had organized “Tree Plantation Drive” in Mittaganahalli and Srinivaspura

Planted around 740 saplings namely Jambu Nerale, Nahi Neralai **Pongamia Pinatta, Mahagani, Sampige Neemon** **22<sup>nd</sup> June 2022** from **9.00 AM to 12.30 PM**. Around 101 students and 30 staff members from different Schools of REVA University, participated in this event.

A noble initiative was undertaken under the banner of “**REVA VANAMAHOTSVA**” on **22<sup>nd</sup> June 2022** to plant 740 saplings of native tree species by the faculty and staff members of different Schools of REVA University on account of 75<sup>th</sup> Independence celebration “**Azadi ka amrut mahotsav**”. The saplings were planted in the vicinity of SrinivasNagara (Byappanahalli) Village, nearby REVA university campus.

The staff members and students were participated in the drive enthusiastically and helped each other in planting the saplings. All the saplings were planted in the Srinivas Nagara (Byappanahalli) Village in temple area and layout road. Staff members and students of REVA University also took an oath to look after the planted samplings, plant more and more trees and encourage others to do the same.

**Importance of Tree Plantation:**

- Trees are important for us to live in. Tree plantation alludes to planting trees at a spot. Tree plantation has many advantages on the earth and our wellbeing. We as a whole inhale oxygen to live, and trees are the main characteristic source of oxygen.
- Tree plantation guarantees that the supply of oxygen never ends.
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- Birds additionally scatter seeds and pollen on the ground, resulting in the development of different plants. So, tree plantation expands the bio-diversity of a specific region.



Coordinators: Prof. Madhu B P Dr Kumar J N Prof. Rajaneesh Aradya DrMunegowda

## Report on

### 'REVA Vanamahotsava' - Tree Plantation Drive

**School/Department:** National Service Scheme (NSS)/School of Architecture

**Venue:** REVA University –School of Architecture

**Date:** 28<sup>th</sup> June 2022

#### Description of Event:

The School of architecture has distributed the tree saplings to students in the concept of "one plant for one student" **REVA VANAMAHOTSAVA** on 28.06.2022. Photos of the plantation have been uploaded in app.

#### Note:

Total number of saplings distributed = 71

To build a greener city, REVA University taking initiative to plant 15,000 saplings in and around Bengaluru through the tree plantation drive '**REVA Vanamahotsava**', a REVA initiative for a cleaner and a greener nation.

Through the campaign 'One Student, One Tree' under REVA Vanamahotsava, the University aims to instill a sense of responsibility in students towards Mother Nature. Going forward, every new student taking admissions at REVA from the academic year 2021-22 will plant a sapling.

With 15,000 students studying at the University, REVA aims to plant 15,000 saplings by the year 2022. As part of the mission, in the first phase, students residing at REVA Hostels, and faculty members of REVA, will be roped in to plant around 3,000 saplings. The plantation drive will be carried out in association with the BBMP, and saplings will be planted in pockets of forest areas, where there is lack of greenery.

Eventually, REVA will assign each student a sapling and a mentor will be allocated to carry out this initiative successfully. The University aims to plant 15,000 saplings with the help of mentors by August 2022.

NO	NAME	SRN	SEMESTER	NO OF SAPLING	SAPLING NAME
1	NITESH MATH	R20AR021	4	2	ರಕ್ತಚಂದನ
2	NAVANEETH S K	R19AR039	6	7	ಬೇವು,ಬೀಟೆ ,ಹಿಪ್ಪೆ ,ರಕ್ತಚಂದನ ,ನೆಲ್ಲಿ, ಮಹಾಗನಿ,ತೋರೆಮತ್ತಿ
3	K SELVA PRIYA	R19AR031	6	1	ಜಂಬುನೇರಳೆ
4	ASHWIN KUMAR	R19AR008	6	2	ಬೇವು,ರಕ್ತಚಂದನ
5	BHOOMIKA PRASAD	R19AR011	6	2	ನೇರಳೆ , ಹಲಸು
6	RAGHAV K BHARADWAJ	R19AR047	6	2	ಬೇವು,ನೆಲ್ಲಿ
7	SAMSKRUTHI S PRABHU	R17AR064	10	3	ಬೇವು,ನೇರಳೆ ,ಜಂಬುನೇರಳೆ



8	BHARATH KUMAR	R20ARO 38	4	10	ಬೇವು,ಬೀಟೆ ,ಹಿಪ್ಪೆ ,ರಕ್ತಚಂದನ ,ನೆಲ್ಲಿ, ಮಹಾಗನಿ,ತೋರೆಮತ್ತಿ,ಜಂಬುನೇರಳೆ
9	CHAITHRA NAGARAJ	R17ARO 10	10	1	ಹಲಸು
10	VIDYABHOOSHAN K A	R17ARO 38	10	2	ರಕ್ತಚಂದನ
11	DINESH KUMAR J	R19ARO 16	6	3	ಬೇವು
12	SHIVRAM	R17ARO 34	10	2	ರಕ್ತಚಂದನ,ಜಂಬುನೇರಳೆ
13	CHAYA		4	2	ಬೇವು,ತೋರೆಮತ್ತಿ
14	MELANIE		6	1	ಮಹಾಗನಿ
15	CHANDAN BABU		6	1	ಹೊಂಗೆ
16	VIDYA MA'AM	DIRECT OR		4	ನೇರಳೆ , ಹಲಸು,ನೆಲ್ಲಿ,ನಾಗಲಿಂಗಪುಷ್ಪ
17	NAVEEN		6	5	ಹಲಸು,ನೆಲ್ಲಿ,ಜಂಬುನೇರಳೆ,ಮಹಾಗನಿ
18	DAVIK		6	1	ನೆಲ್ಲಿ
19	LAKSHMI PRIYA	R19ARO 36	6	4	ಬೇವು,ನೆಲ್ಲಿ,ಹಲಸು,ನಾಗಲಿಂಗಪುಷ್ಪ
20	PRERANA S K		8	7	3 ಹಲಸು, 2 ನೇರಳೆ, 1 ನಾಗಲಿಂಗಪುಷ್ಪ, 1 ನೆಲ್ಲಿ
21	SNEHA ma'am		M.arch	2	ನೆಲ್ಲಿ, ಜಂಬುನೇರಳೆ
22	sunbul		M.arch	2	ಬೇವು,ನೆಲ್ಲಿ
23	harinishree		10	1	ಮಹಾಗನಿ
24	asha		10	2	ಮಹಾಗನಿ, ಬೀಟೆ
25	preranavashisht		10	1	ಜಂಬುನೇರಳೆ
26	anusha		10	1	ಬೇವು
<b>TOTAL =</b>				<b>71</b>	



## Report on

### 'REVA Vanamahotsava' - Tree Plantation Drive

School/Department: REVA Independent PU College Sanjaynagar, Ganganagar School of Architecture & School of Performing Arts and Indic Studies in Association with NSS & NCC unit of REVA University

**Venue: Nellukunte, Doddaballapura Taluk**

**Date: 30.07.2022**

#### **Description of Event:**

The REVA Independent PU College Sanjaynagar, Ganganagar School of Architecture & School of Performing Arts and Indic Studies in Association with NSS & NCC unit of REVA University had organized 'REVA VANAMAHOTSAVA'- Mega Tree Plantation Drive at Nellukunte, Doddaballapura Taluk on 30.07.2022 at 10.00AM.

**Planted 1800 samplings of Mahagani -1500, Jambu Nerale -100, Pongamia -100, Tore Matti -50, Honne-50**

Program started in the presence of **Lt. Col. P Kaliappan**, Admin Officer ,39 KAR BN NCC, **Shri. ManjunathM** , Principal, REVA Independent PU College, Sanjayanagar, **Shri. ShivaramaKrishna**, Principal, REVA Independent PU College, Ganganagar. Capt. MuneGowda, NCC Officer , Prof.Madhu B P. NSS Coordinator, Dr.Devanatham , Assistant Professor, School of ECE and Faculty , staff and student

Chief Guest **Lt. Col. P Kaliappan** spoken related to social cause and importance of planting tree **Shri. Manjunath M**, explained importance of plantation and its advantage.

**Shri. Shivaramakrishna** briefed about involving the students in tree plantation and its effect on students social responsibility.

End of the formal function vote of thanks by **Prof.Madhu B P**, NSS Coordinator

270 students and 50 Staff members participated in this program

#### **Event Objective:**

1. Tree plantation is an important activity to make our environment greener and cleaner.
2. Tree plantation is an important activity to make our environment greener and cleaner. We must plant trees in every season (except in high temperature level of summer) and take care of it. Usually, tree plantation programs are held just before the onset of the monsoons so that the saplings can get plenty of water to grow.
3. Tree plantation is an important activity to make our environment greener and cleaner. We must plant trees in every season (except in high temperature level of summer) and take care of it. Usually, tree plantation programs are held just before the onset of the monsoons so that the saplings can get plenty of water to grow.

#### **Event Outcome:**

1. Students understood importance of tree plantation and types of trees which are beneficial to maintain clean environment.
2. Students realized impact of air pollution on society.
3. Students are able to understand importance of tree by taking food in leaves.



**REVA Independent PU College Sanjaynagar, Ganganagar**  
**School of Architecture & School of Performing Arts and Indic Studies**  
 In Association With  
**NSS & NCC unit of REVA University**  
 Cordially Invites you all to the Inauguration of

## REVA VANAMAHOTSVA

### Mega Plantation Drive

**President**  
**Dr. P. Shyamrao Raju**  
 Hon'ble Chancellor  
 REVA University

**Chief Guest**  
**Lt. Col. P. Kallappan**  
 Admbh Officer  
 85 KAR BN NCC

**Sri. Prathap Lingaiah**  
 State NSS Officer  
 National Service Scheme Cell

**Gracing the Occasion**  
**Dr. M. Dhananjaya**  
 Vice Chancellor, REVA University

**Dr. Rajeshkhar C Biradar**  
 Pro Vice-Chancellor, REVA University

**Dr. N. Ramesh**  
 Registrar, REVA University

Date : 30<sup>th</sup> July, 2022      Venue : Nellakunte, Doddaballapura Taluk  
 Time : 9:30 A. M.

Rukmini Educational Charitable Trust      www.reva.edu.in





Coordinators: Prof.Madhu B P Prof.Narashima Murthy Dr Munegowda C

## “REVA VANAMAHOTSVA”-Tree Plantation Drive

To build a greener city, REVA University taking initiative to plant 15,000 saplings in and around Bengaluru through the tree plantation drive ‘REVA Vanamahotsava’, a REVA initiative for a cleaner and a greener nation.

Through the campaign ‘One Student, One Tree’ under REVA Vanamahotsava, the University aims to instill a sense of responsibility in students towards Mother Nature. Going forward, every new student taking admissions at REVA from the academic year 2021-22 will plant a sapling.

With 15,000 students studying at the University, REVA aims to plant 15,000 saplings by the year 2022. As part of the mission, in the first phase, students residing at REVA Hostels, and faculty members of REVA, will be roped in to plant around 3,000 saplings. The plantation drive will be carried out in association with the BBMP, and saplings will be planted in pockets of forest areas, where there is lack of greenery.

Eventually, REVA will assign each student a sapling and a mentor will be allocated to carry out this initiative successfully. The University aims to plant 15,000 saplings with the help of mentors by August 2022.

Sl No	Date of Planted	School Responsible	No. Sapling planted	Place	Distance from REVA University	Name of Contact Person from school	Name of Contact Person from Place of planted	Google Map
1	08.08.2021	School of Mechanical Engineering	700	Mittaganahalli, Kannur Grampancyath	2.5 Km	Prof. Varadaraj K R-9164090998 Prof. Vinod R-9742878392	Mr. Prakash 9845643941	<a href="https://maps.google.com/maps?&amp;q=13.1078127%2C77.6388576&amp;z=17&amp;hl=en">https://maps.google.com/maps?&amp;q=13.1078127%2C77.6388576&amp;z=17&amp;hl=en</a>
2	26.08.2021	Basic Science	300	KotePrasannaAnjanyaSwamy Temple, Srinivas NagaraSatnur Grampanchayat	3 Km	DrUday Kumar-9980923283	Mr. Lakshman Gowda 9480425872	<a href="https://maps.google.com/maps?&amp;q=13.1167346%2C77.6495067&amp;z=17&amp;hl=en">https://maps.google.com/maps?&amp;q=13.1167346%2C77.6495067&amp;z=17&amp;hl=en</a>
3	30.08.2021	School of Civil Engineering	2520	Dibburahalli, Sidlaghatta taluk, Chikka ballapura district	76 Km	Prof. Raghunandan-9922447088	Mr. Manjunath-9008497969	<a href="https://google.com/maps/Nsc6rYGvsiWAbuBi7">https://google.com/maps/Nsc6rYGvsiWAbuBi7</a>
4	09.09.2021	School of Electrical and	150	Srinivas nagar ,Satnur Grampanc	3 Km	Prof. Doddabasappa	Mr. Ravindra-	<a href="https://maps.google.com/maps?&amp;q=13.1207406%2C77.6388576&amp;z=17&amp;hl=en">https://maps.google.com/maps?&amp;q=13.1207406%2C77.6388576&amp;z=17&amp;hl=en</a>

		Electronics Engineering		hayat		N-9538740673	9663574669	<a href="https://www.google.com/maps/place/7.6434867&amp;z=17&amp;hl=en">7.6434867&amp;z=17&amp;hl=en</a>
5	29.10.2021	The Smt. Rukmini Shyama Raju Club of School of Civil Engineering	300	MahadevaK odegahalli	10 Km	Dr. M A Nagesh 9448748333 Prof.Pradeepkumar B K 9738033066	Mr.Jagadeesh 9902159988	<a href="https://goo.gl/map">https://goo.gl/map</a>
6	8.12.2021	School of CSE and C&IT	500	Haradi village, H-Cross, Sidalagatta , Chikkaballapura	47.1 Km	Prof. Prabhuraj 7795240398	Mr. Bharath 9908565936	<a href="https://goo.gl/maps/i5co5PniBSczLn5I7">https://goo.gl/maps/i5co5PniBSczLn5I7</a>
7	27.05.2022	School of Mechanical Engineering	100	Singanayaka nahalli	15Km	Prof. Arun Kumar H 9980555279	Mr. Prsanath Reddy 9342359299	<a href="https://goo.gl/maps/65ckR1mU5mWKoq47A">https://goo.gl/maps/65ckR1mU5mWKoq47A</a>
8	13.06.2022 & 14.06.2022	School of CSE	(380+420) 800	Juntanahalli	22Km	Prof. Prabhuraj 7795240398	Prof. Ambika B J 9741985366	<a href="https://goo.gl/maps/NtqF7kLMSWCmfafq7">https://goo.gl/maps/NtqF7kLMSWCmfafq7</a>
9	15.06.2022 & 21.06.2022	School of Applied Science	(600+240) 840	ITC Factory – Sadahalli Gate	16 Km	DrUday Kumar- 9980923283	Shri Vijay Singh 9844880710	<a href="https://maps.app.goo.gl/sqQvbaoxpfVfega6">https://maps.app.goo.gl/sqQvbaoxpfVfega6</a>
10	22.06.2022	School of Legal Studies and School of Arts and Humanities	740	Mittaganahalli and Srinivaspura	3 Km	Dr Kumar J N 9611285262	Shri Mohan Raj 9341254071	<a href="https://goo.gl/maps/oJSaMuAM55zhz1KP8">https://goo.gl/maps/oJSaMuAM55zhz1KP8</a>
11	25.06.2022	REVA PU Independent College	460	Bagalur colony and Gopal Pura	8 Km	Pro.Sridevi	Shri Sunil Kumar 9095220593	<a href="https://maps.app.goo.gl/EmaNwk3ocj3AeH589">https://maps.app.goo.gl/EmaNwk3ocj3AeH589</a>  <a href="https://maps.app.goo.gl/xTqF3MRmavNADQGx5">https://maps.app.goo.gl/xTqF3MRmavNADQGx5</a>
12	27.06.2022	School of CSA	750	Gadenahalli	13 Km	Prof. Apoorva 7760114305	Shri. Anand 9740460889	<a href="https://goo.gl/maps/LH4miMCLeEkv3zTcA">https://goo.gl/maps/LH4miMCLeEkv3zTcA</a>
13	28.06.2022	School of Architecture	71	REVA University-Distribution		Prof. VidyaSrikanth	Prof. Nagaraj S	
14	29.06.2022	School of ECE	1040	Sadahalli Gate	12 Km	Prof. Vidya Saga	Shri. Mallikarjuna	<a href="https://maps.app.goo.gl/7BwqRoh">https://maps.app.goo.gl/7BwqRoh</a>

							9035755193	<a href="https://maps.app.goo.gl/WLys9qktz7">WLys9qktz7</a>
15	01.07.2022	School of RBS, Commerce and Management	1000	Appegowd anahalli village, Sidalgatta Taluk, Chikkaballapura Dist.	45 Km	Dr. M Subramanyam	Shri. Thygaraju 9845021456	<a href="https://maps.app.goo.gl/qD3CsWuBx29e2qh39">https://maps.app.goo.gl/qD3CsWuBx29e2qh39</a>
16	14.07.2022	School of Mechanical and Civil Engineering	800	Pujanahalli, Karnataka	14.1 Km	Prof. Madhu B P	Anjanappa 9880104379	<a href="https://maps.app.goo.gl/JXdZFDPmSrFA2PK8">https://maps.app.goo.gl/JXdZFDPmSrFA2PK8</a>
17	15.07.2022	School of Legal Studies	300	Salivaram, Denkanikhotai Taluk, Krishnagiri District, Tamil Nadu.	97.1 Km	Dr Kumar J N	Shri. Raja Reddy 9886006917	<a href="https://maps.app.goo.gl/SBUASDMdRLH349H28">https://maps.app.goo.gl/SBUASDMdRLH349H28</a>
18	20.07.2022	School of C&IT	640	Pujanahalli, Eithore Pedanaghalli Karnataka	20.4Km	Prof. Mounusha S 7259584492	Anjanappa 9880104379	<a href="https://maps.app.goo.gl/JXdZFDPmSrFA2PK8">https://maps.app.goo.gl/JXdZFDPmSrFA2PK8</a>  <a href="https://goo.gl/maps/M6J7xHr8GsVhE6hC6">https://goo.gl/maps/M6J7xHr8GsVhE6hC6</a>  <a href="https://goo.gl/maps/5Dbbsb46VKKu5rftNw7">https://goo.gl/maps/5Dbbsb46VKKu5rftNw7</a>
19	23.07.2022	REVA Alumni Association	1140	Pujanahalli, Karnataka	14.1 Km	DrNatarajUrs	Shri Pavan 9902916109	<a href="https://goo.gl/maps/3xBqRhZEkbbsxWWJK8">https://goo.gl/maps/3xBqRhZEkbbsxWWJK8</a>
20	27.07.2022	School of EEE	400	Yediyur	7 Km	Prof. Doddabasappa 9538740673	Shri Shivaraju 9591220207	<a href="https://maps.app.goo.gl/dCSLuanx1RBXmNvc9">https://maps.app.goo.gl/dCSLuanx1RBXmNvc9</a>
21	30.07.2022	REVA Independent PU College Sanjaynagar, Ganganagar School of Architecture & School of Performing Arts and Indic Studies	1800	Nellukunte, Doddaballapura Taluk	42 Km			<a href="https://maps.app.goo.gl/GUBhZxqjWo6o5NBA9">https://maps.app.goo.gl/GUBhZxqjWo6o5NBA9</a>

Total: 15,351



### SDG-14 MARINE ECOSYSTEM

It includes programs and activities envisaged for the conservation of ecology & Biodiversity of marine resources in sea, ocean, estuaries etc. including mangroves, turtle grounds, corals etc. The main aims are conserve and sustainably use the oceans, seas and marine resources for sustainable development. It has laid down specific goals like:

(i) By 2025, prevent and significantly reduce marine pollution of all kinds, particularly from land-based activities, including marine debris and nutrient pollution (ii) By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration, to achieve healthy and productive oceans (iii) Minimize and address the impacts of ocean

acidification, including through enhanced scientific cooperation at all levels (iv) By 2020, effectively regulate harvesting, and end overfishing, illegal, unreported and unregulated (IUU) fishing and destructive fishing practices and implement science-based management plans, to restore fish stocks in the shortest time feasible at least to levels that can produce maximum sustainable yield as determined by their biological characteristics (v) By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on best available scientific information (vi) By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, and eliminate subsidies that contribute to IUU fishing, and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the WTO fisheries subsidies negotiation (vii) By 2030

increase the economic benefits to SIDS and LDCs from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism (viii) Increase scientific knowledge, develop research capacities and transfer marine technology taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular SIDS and LDCs. (ix) Provide access of small-scale artisanal fishers to marine resources and markets (x) Ensure the full implementation of international law, as reflected in UNCLOS for states parties to it, including, where applicable, existing regional and international regimes for the conservation and sustainable use of oceans and their resources by their parties.



	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	
Activity		Status
Research related to aquatic ecosystems including ocean science		Yes – 24 nos
Community education programs for freshwater water body conservations		Yes, Jagruthi
Community education programs for coastal area management		No
Outreach programs on over, uncontrolled and destructive fishing		No
Event support on aquatic ecosystem management		Yes, Jagruthi
Work on technologies or practices to help marine industry prevent damage to aquatic ecosystem		No
Community interventions to maintain shares aquatic ecosystems		No



**SDG-15 TERRESTRIAL ECOSYSTEM**

It includes programs mainly aimed at fulfilling of the Target 11 of the Aichi Targets for Biodiversity Conservation, which says, “By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-

connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes” (CBD, 2010). This SDG-15 aims at protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Both Goals 14 and 15 of the proposed SDGs contain within them a hint at a strategy that India is familiar with, for conserving biodiversity. Simply put, this is a strategy that is pursued through the creation, expansion and consolidation of a protected areas network


that has resulted in remarkable achievements of conserving species as well as ecosystems in India. Although the protected areas network is a remarkable achievement for a poor country like India that has many other competing and urgent priorities, additional efforts need to be made to expand the network in order to conform to not only SDGs but also terms agreed upon under the Convention on Biological Diversity. Thrust AREA India has an existing network of 700 protected areas (ENVIS Centre on Wildlife & Protected Areas, 2015). However, since the average size of the protected areas in India is small, the percentage of the country’s land area covered through this network is only 5.06 per



cent. This is well below Target 11 of the Aichi Targets for Biodiversity Conservation that states, "By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes" (CBD, 2010). The Indian National Biodiversity Support and Action Plan states that "Ecologically representative areas on land and in inland waters, as well as coastal and marine zones, especially those of particular importance for species, biodiversity and ecosystem services, are conserved effectively and equitably, on the basis of protected

area designation and management and other area-based conservation measures and are integrated into the wider landscapes and seascapes, covering over 20 per cent of the geographic area of the country, by 2020". Thus, India needs to expand its protected areas network and almost quadruple the area covered under the network. Land degradation and deteriorating quality of marine resources have a direct negative impact on economic growth. All sectors of the economy depend directly or indirectly on natural resources. Agriculture depends on land as a crucial input for production, and therefore the achievement of food security under Goal 2 is dependent on the effective management of land use. Protection of terrestrial ecosystems as well as marine ecosystems is essential to preserve the rich biodiversity of our country, on which many

depend for their livelihoods. Deteriorating quality of these ecosystems will prove detrimental to biodiversity based livelihoods. It has been well-documented that if the damage to the ecosystem and environment is not stopped and reversed, economic growth (Goal 8) will suffer in the long run. Goals 14 and 15 should also be kept in mind while planning for Goals 9 (industries and infrastructure) and 11 (urbanization) as these are the major sources of pollution. Goals 9 and 11 must be implemented in a sustainable fashion for the achievement of goals 14 and 15. Sustainable Consumption and Production (SCP) practices, as outlined in Goal 12, may be the way to reconcile considerations of environment as outlined in Goals 14 and 15 with the growing needs of infrastructure and industries as outlined in Goals 9 and 11.

	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
Activity		Status
Research on terrestrial ecosystems		Yes – 21 nos
Organizing events aimed for conservation and sustainable land use		Yes, Jagruthi, Vanamahotsava

Policy to ensure conservation, restoration and sustainable use of land ecosystems associated with the university	Yes, Swachh campus, Smart & Clean campus
Inclusion of local biodiversity in planning and developmental processes	Yes Biodiversity labeling, medicinal plantations
Any policy on the introduction of alien species inside the campus	Yes/No

**Biodiversity listing and labeling of flora done in the campus are listed below:**

STRETCH A (Main gate to circle)			
S.No.	Stretch	Common name	Scientific name
1	A	Royal Palm	<i>Roystonea regia</i>
2	A	Royal Palm	<i>Roystonea regia</i>
Left side			
3	A	Royal Palm	<i>Roystonea regia</i>
4	A	Royal Palm	<i>Roystonea regia</i>
Middle			
5	A	Sago palm	<i>Cycas revoluta</i>
6	A	Miniature date palm	<i>Phoenix roebelenii</i>
Parking Wall			
7	A	Silver oak	<i>Grevillea robusta</i>
8	A	Teak	<i>Tectona grandis</i>
9	A	Silver oak	<i>Grevillea robusta</i>
10	A	Teak	<i>Tectona grandis</i>
11	A	Silver oak	<i>Grevillea robusta</i>
12	A	Teak	<i>Tectona grandis</i>
13	A	Silver oak	<i>Grevillea robusta</i>
14	A	Teak	<i>Tectona grandis</i>
15	A	Silver oak	<i>Grevillea robusta</i>
16	A	Teak	<i>Tectona grandis</i>
17	A	Silver oak	<i>Grevillea robusta</i>
18	A	Teak	<i>Tectona grandis</i>

19	A	Silver oak	<i>Grevillea robusta</i>
20	A	Teak	<i>Tectona grandis</i>
21	A	Silver oak	<i>Grevillea robusta</i>
22	A	Teak	<i>Tectona grandis</i>
23	A	Silver oak	<i>Grevillea robusta</i>
24	A	Teak	<i>Tectona grandis</i>
25	A	Silver oak	<i>Grevillea robusta</i>
26	A	Subabul	<i>Leucaena leucocephala</i>
27	A	Mango	<i>Mangifera indica</i>
28	A	Birds eye cherry	<i>Muntingia calabura</i>
29	A	Subabul	<i>Leucaena leucocephala</i>
30	A	Pongam oil tree	<i>Pongamia pinnata</i>
31	A	Subabul	<i>Leucaena leucocephala</i>
32	A	Silver oak	<i>Grevillea robusta</i>
33	A	Jackfruit	<i>Artocarpus heterophyllus</i>
34	A	Wild Jamun	<i>Syzygium cumini</i>
35	A	Jackfruit	<i>Artocarpus heterophyllus</i>
36	A	Royal Palm	<i>Roystonea regia</i>
37	B	Indian almond	<i>Terminalia catappa</i>
38	B	Frangipani	<i>Plumeria</i>
39	B	Indian almond	<i>Terminalia catappa</i>
40	B	Frangipani	<i>Plumeria</i>
41	B	Indian almond	<i>Terminalia catappa</i>
42	B	Frangipani	<i>Plumeria</i>
43	B	Indian almond	<i>Terminalia catappa</i>
44	B	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
45	B	Indian almond	<i>Terminalia catappa</i>
46	B	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
47	B	Indian almond	<i>Terminalia catappa</i>
48	B	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>

49	B	Indian almond	<i>Terminalia catappa</i>
50	B	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
51	B	White Frangipani	<i>Plumeria alba</i>
52	B	Red Frangipani	<i>Plumeria rubra</i>
53	B	Mango	<i>mangifera indica</i>
54	B	Indian almond	<i>Terminalia catappa</i>
55	B	Red Frangipani	<i>Plumeria rubra</i>
56	B	mahagony	<i>swietenia macrophylla</i>
57	B	Champak	<i>Magnolia champaca</i>
58	B	Indian almond	<i>Terminalia catappa</i>
59	B	Champak	<i>Magnolia champaca</i>
60	B	Mango	<i>Mangifera indica</i>
61	B	Champak	<i>Magnolia champaca</i>
62	B	Mango	<i>mangifera indica</i>
63	B	Champak	<i>Magnolia champaca</i>
64	B	Mango	<i>mangifera indica</i>
65	B	Champak	<i>Magnolia champaca</i>
66	B	Mango	<i>mangifera indica</i>
67	B	Champak	<i>Magnolia champaca</i>
68	B	Mango	<i>mangifera indica</i>
69	B	Indian almond	<i>Terminalia catappa</i>
70	B	Mango	<i>mangifera indica</i>
71	B	Indian almond	<i>Terminalia catappa</i>
72	B	Indian almond	<i>Terminalia catappa</i>
73	B	Mango	<i>mangifera indica</i>
74	B	Indian almond	<i>Terminalia catappa</i>
75	B	Mango	<i>mangifera indica</i>
76	B	Indian almond	<i>Terminalia catappa</i>
77	B	Mango	<i>mangifera indica</i>
78	B	Indian almond	<i>Terminalia catappa</i>

79	B	Mango	<i>mangifera indica</i>
80	B	Indian almond	<i>Terminalia catappa</i>
81	B	Mango	<i>mangifera indica</i>
82	B	Indian almond	<i>Terminalia catappa</i>
83	B	Mango	<i>mangifera indica</i>
84	B	Jackfruit	<i>Artocarpus heterophyllus</i>
85	B	Indian almond	<i>Terminalia catappa</i>
86	B	Wild jamun	<i>Syzygium cumini</i>
87	B	Jackfruit	<i>Artocarpus heterophyllus</i>
88	B	Indian almond	<i>Terminalia catappa</i>
89	B	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
90	B	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
91	B	Wild jamun	<i>Syzygium cumini</i>
92	B	Jackfruit	<i>Artocarpus heterophyllus</i>
93	B	Indian almond	<i>Terminalia catappa</i>
94	C	Shining sumac	<i>Rhus copallinum</i>
95	C	Silver oak	<i>Grevillea robusta</i>
96	C	Silver oak	<i>Grevillea robusta</i>
97	C	Shining sumac	<i>Rhus copallinum</i>
98	C	Silver oak	<i>Grevillea robusta</i>
99	C	Silver oak	<i>Grevillea robusta</i>
100	C	Shining sumac	<i>Rhus copallinum</i>
101	C	Silver oak	<i>Grevillea robusta</i>
102	C	Shining sumac	<i>Rhus copallinum</i>
103	C	Silver oak	<i>Grevillea robusta</i>
104	C	Shining sumac	<i>Rhus copallinum</i>
105	C	Silver oak	<i>Grevillea robusta</i>
106	C	Shining sumac	<i>Rhus copallinum</i>
107	C	Silver oak	<i>Grevillea robusta</i>
108	C	Shining sumac	<i>Rhus copallinum</i>

109	C	Silver oak	<i>Grevillea robusta</i>
110	C	Shining sumac	<i>Rhus copallinum</i>
111	C	Silver oak	<i>Grevillea robusta</i>
112	C	Shining sumac	<i>Rhus copallinum</i>
113	C	Silver oak	<i>Grevillea robusta</i>
114	C	Shining sumac	<i>Rhus copallinum</i>
115	C	Silver oak	<i>Grevillea robusta</i>
116	C	Shining sumac	<i>Rhus copallinum</i>
117	C	Silver oak	<i>Grevillea robusta</i>
118	C	Shining sumac	<i>Rhus copallinum</i>
119	C	Silver oak	<i>Grevillea robusta</i>
120	C	Shining sumac	<i>Rhus copallinum</i>
121	C	Silver oak	<i>Grevillea robusta</i>
122	C	Champak	<i>Magnolia champaca</i>
123	C	Shining sumac	<i>Rhus copallinum</i>
124	C	Silver oak	<i>Grevillea robusta</i>
125	C	Shining sumac	<i>Rhus copallinum</i>
126	C	Silver oak	<i>Grevillea robusta</i>
127	C	Trumpet Tree	<i>Tabebuia berteroi</i>
128	C	Silver oak	<i>Grevillea robusta</i>
129	C	Silver oak	<i>Grevillea robusta</i>
130	C	Silver oak	<i>Grevillea robusta</i>
131	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
132	D	Weeping fig	<i>Ficus benjamina</i>
133	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
134	D	Weeping fig	<i>Ficus benjamina</i>
135	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
136	D	Weeping fig	<i>Ficus benjamina</i>
137	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
138	D	Weeping fig	<i>Ficus benjamina</i>

139	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
140	D	Weeping fig	<i>Ficus benjamina</i>
141	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
142	D	Weeping fig	<i>Ficus benjamina</i>
143	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
144	D	Weeping fig	<i>Ficus benjamina</i>
145	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
146	D	Weeping fig	<i>Ficus benjamina</i>
147	D	mahagony	<i>swietenia macrophylla</i>
148	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
149	D	Champak	<i>Magnolia champaca</i>
150	D	White Frangipani	<i>Plumeria alba</i>
151	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
152	D	Jackfruit	<i>Artocarpus heterophyllus</i>
153	D	Weeping fig	<i>Ficus benjamina</i>
154	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
155	D	Champak	<i>Magnolia champaca</i>
156	D	Red Frangipani	<i>Plumeria rubra</i>
157	D	Trumpet Tree	<i>Tabebuia berteroi</i>
158	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
159	D	Champak	<i>Magnolia champaca</i>
160	D	Weeping fig	<i>Ficus benjamina</i>
161	D	Indian almond	<i>Terminalia catappa</i>
162	D	mahagony	<i>swietenia macrophylla</i>
163	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
164	D	Champak	<i>Magnolia champaca</i>
165	D	White Frangipani	<i>Plumeria alba</i>
166	D	Trumpet Tree	<i>Tabebuia berteroi</i>
167	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
168	D	White Frangipani	<i>Plumeria alba</i>



169	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
170	D	mahagony	<i>swietenia macrophylla</i>
171	D	Champak	<i>Magnolia champaca</i>
172	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
173	D	mahagony	<i>swietenia macrophylla</i>
174	D	White Frangipani	<i>Plumeria alba</i>
175	D	Champak	<i>Magnolia champaca</i>
176	D	Red Frangipani	<i>Plumeria rubra</i>
177	D	Trumpet Tree	<i>Tabebuia berteroi</i>
178	D	Champak	<i>Magnolia champaca</i>
179	D	White Frangipani	<i>Plumeria alba</i>
180	D	Red Frangipani	<i>Plumeria rubra</i>
181	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
182	D	Silver oak	<i>Grevillea robusta</i>
183	D	Trumpet Tree	<i>Tabebuia berteroi</i>
184	D	Silver oak	<i>Grevillea robusta</i>
185	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
186	D	Trumpet Tree	<i>Tabebuia berteroi</i>
187	D	Silver oak	<i>Grevillea robusta</i>
188	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
189	D	Weeping fig	<i>Ficus benamina</i>
190	D	Trumpet Tree	<i>Tabebuia berteroi</i>
191	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
192	D	Silver oak	<i>Grevillea robusta</i>
193	D	Trumpet Tree	<i>Tabebuia berteroi</i>
194	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
195	D	Silver oak	<i>Grevillea robusta</i>
196	D	Trumpet Tree	<i>Tabebuia berteroi</i>
197	D	Silver oak	<i>Grevillea robusta</i>
198	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>

199	D	Trumpet Tree	<i>Tabebuia berteroi</i>
200	D	Silver oak	<i>Grevillea robusta</i>
201	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
202	D	Trumpet Tree	<i>Tabebuia berteroi</i>
203	D	Silver oak	<i>Grevillea robusta</i>
204	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
205	D	Silver oak	<i>Grevillea robusta</i>
206	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
207	D	Silver oak	<i>Grevillea robusta</i>
208	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
209	D	Silver oak	<i>Grevillea robusta</i>
210	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
211	D	Silver oak	<i>Grevillea robusta</i>
212	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
213	D	Silver oak	<i>Grevillea robusta</i>
214	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
215	D	Silver oak	<i>Grevillea robusta</i>
216	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
217	D	Silver oak	<i>Grevillea robusta</i>
218	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
219	D	Silver oak	<i>Grevillea robusta</i>
220	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
221	D	Silver oak	<i>Grevillea robusta</i>
222	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
223	D	Silver oak	<i>Grevillea robusta</i>
224	D	Tahitian gooseberry	<i>Phyllanthus acidus</i>
225	D	Silver oak	<i>Grevillea robusta</i>
226	D	Mango	<i>mangifera indica</i>
227	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
228	D	Tahitian gooseberry	<i>Phyllanthus acidus</i>

229	D	Guava	<i>Psidium guajava</i>
230	D	Neem	<i>Azadirachta indica</i>
231	D	Mango	<i>mangifera indica</i>
232	D	Silver oak	<i>Grevillea robusta</i>
233	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
234	D	Silver oak	<i>Grevillea robusta</i>
235	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
236	D	Silver oak	<i>Grevillea robusta</i>
237	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
238	D	Silver oak	<i>Grevillea robusta</i>
239	D	Pink Trumpet Tree	<i>Tabebuia heterophylla</i>
240	D	Weeping fig	<i>Ficus benjamina</i>
241	D	Red Frangipani	<i>Plumeria rubra</i>
242	D	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
244	E	Trumpet Tree	<i>Tabebuia berteroi</i>
245	E	Silver oak	<i>Grevillea robusta</i>
246	E	Silver oak	<i>Grevillea robusta</i>
247	E	Silver oak	<i>Grevillea robusta</i>
248	E	Trumpet Tree	<i>Tabebuia berteroi</i>
249	E	Red Frangipani	<i>Plumeria rubra</i>
250	E	Trumpet Tree	<i>Tabebuia berteroi</i>
251	E	Trumpet Tree	<i>Tabebuia berteroi</i>
252	E	Champak	<i>Magnolia champaca</i>
253	E	Trumpet Tree	<i>Tabebuia berteroi</i>
255	E	Rose Apple	<i>Syzygium jambos</i>
256	E	Indian almond	<i>Terminalia catappa</i>
257	E	Trumpet Tree	<i>Tabebuia berteroi</i>
258	E	Weeping fig	<i>Ficus benjamina</i>
259	E	Trumpet Tree	<i>Tabebuia berteroi</i>
260	E	Indian almond	<i>Terminalia catappa</i>

261	E	Rose Apple	<i>Syzygium jambos</i>
262	E	Indian almond	<i>Terminalia catappa</i>
263	E	Trumpet Tree	<i>Tabebuia berteroi</i>
264	E	Trumpet Tree	<i>Tabebuia berteroi</i>
266	E	Malayan Banyan	<i>Ficus microcarpus/panda</i>
267	E	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
268	E	White Frangipani	<i>Plumeria alba</i>
269	E	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
270	E	Indian almond	<i>Terminalia catappa</i>
271	E	Coconut	<i>Cocos nucifera</i>
272	E	Trumpet Tree	<i>Tabebuia berteroi</i>
273	E	Chinese Banyan	<i>Ficus microcarpa</i>
274	E	Chinese Banyan	<i>Ficus microcarpa</i>
275	E	Gieger tree	<i>Cordia sebestena</i>
276	E	Silver oak	<i>Grevillea robusta</i>
277	E	Trumpet Tree	<i>Tabebuia argentina</i>
278	E	Silver oak	<i>Grevillea robusta</i>
279	E	Trumpet Tree	<i>Tabebuia argentina</i>
280	E	Silver oak	<i>Grevillea robusta</i>
281	E	Silver oak	<i>Grevillea robusta</i>
282	E	Trumpet Tree	<i>Tabebuia argentina</i>
283	E	Silver oak	<i>Grevillea robusta</i>
284	E	Silver oak	<i>Grevillea robusta</i>
285	E	Trumpet Tree	<i>Tabebuia argentina</i>
286	E	Silver oak	<i>Grevillea robusta</i>
287	E	Silver oak	<i>Grevillea robusta</i>
288	E	Trumpet Tree	<i>Tabebuia argentina</i>
289	E	Silver oak	<i>Grevillea robusta</i>
290	E	Silver oak	<i>Grevillea robusta</i>
291	E	Indian almond	<i>Terminalia catappa</i>

292	E	Indian almond	<i>Terminalia catappa</i>
293	E	Teak	<i>Tectona grandis</i>
294	E	Ficus	<i>Ficus panda</i>
295	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
296	E	Ficus	<i>Ficus panda</i>
297	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
298	E	Ficus	<i>Ficus panda</i>
299	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
300	E	Ficus	<i>Ficus panda</i>
301	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
302	E	Ficus	<i>Ficus panda</i>
303	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
304	E	Ficus	<i>Ficus panda</i>
305	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
306	E	Ficus	<i>Ficus panda</i>
307	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
308	E	Ficus	<i>Ficus panda</i>
309	E	Yellow Bottle Brush	<i>Callistemon citrinus</i>
310	E	Lady Palm	<i>Rhapis excelsa</i>
311	E	Tuja	<i>Cyprus occidentalis</i>
312	E	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
313	E	Red Frangipani	<i>Plumeria rubra</i>
314	E	Ficus	<i>Ficus panda</i>
315	E	Glory bower	<i>Clerodendron inerme</i>
316	E	Tuja	<i>Cyprus occidentalis</i>
317	E	Yellow trumpet bush	<i>Tecoma stans (3 rows)</i>
318	E	Copper leaf	<i>Acalypha species(2 rows)</i>
319	E	Dwarf umbrella	<i>Schefflera arboricola(2 rows)</i>
320	E	Duranta gold	<i>Duranta erecta</i>
321	E	Jatropha	<i>Jatropha integerima</i>

322	E	Shining sumac	<i>Rhus copallinum</i>
323	E	Tuja	<i>Cyprus occidentalis</i>
324	E	Shining sumac	<i>Rhus copallinum</i>
325	E	Aloe yucca	<i>Yucca aloifolia( divider opp to admin block)</i>
326	E	Yellow trumpet bush	<i>Tecoma stans (3 rows)</i>
327	E	Copper leaf	<i>Acalypha species(2 rows)</i>
328	F	Mahagony	<i>Swietenia macrophylla</i>
329	F	Champak	<i>Magnolia champaca</i>
330	F	Yellow trumpet bush tree	<i>Tecoma stans</i>
331	F	Trumpet Tree	<i>Tabebuia</i>
332	F	Pink Trumpet Tree	<i>Tabebuia impetiginosa</i>
333	F	Trumpet Tree	<i>Tabebuia</i>
334	F	Fire bush	<i>Hemilia patens (hedge)</i>
335	F	Coconut	<i>Cocos nucifera</i>
336	F	Black board tree	<i>Alstonea schoralis</i>
337	F	Lady Palm	<i>Rhapis excelsa</i>
338	F	Indian almond	<i>Terminalia catappa</i>
339	F	Trumpet Tree	<i>Tabebuia</i>
340	F	Coconut	<i>Cocos nucifera</i>
341	F	Tuja	<i>Cyprus occidentalis</i>
342	F	Weeping fig	<i>Ficus benjamina</i>
343	F	Coconut	<i>Cocos nucifera</i>
344	F	Rosy trumpet tree	<i>Tabebuia rosea</i>
345	F	Weeping fig	<i>Ficus benjamina</i>
346	F	Red Leea	<i>Leae coccinea rubra</i>
347	F	Indian almond	<i>Terminalia catappa</i>
348	F	Rosy trumpet tree	<i>Tabebuia rosea</i>
349	F	Champak	<i>Magnolia champaca</i>
350	F	Lady Palm	<i>Rhapis excelsa</i>
351	F	Weeping fig	<i>Ficus benjamina</i>

352	F	Ficus	<i>Ficus panda</i>
353	F	White Frangipani	<i>Plumeria alba</i>
354	F	Ficus	<i>Ficus panda</i>
355	F	Red Frangipani	<i>Plumeria rubra</i>
356	F	Champak	<i>Magnolia champaca</i>
357	F	Ficus	<i>Ficus panda</i>
358	F	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
359	F	Ficus	<i>Ficus panda</i>
360	F	White Frangipani	<i>Plumeria alba</i>
361	F	Red Frangipani	<i>Plumeria rubra</i>
362	F	Trumpet Tree	<i>Tabebuia</i>
363	F	Ficus	<i>Ficus panda</i>
364	F	Champak	<i>Magnolia champaca</i>
365	F	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
366	F	Ficus	<i>Ficus panda</i>
367	F	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
368	F	Sandalwood	<i>Santalum album</i>
369	G	Ficus	<i>Ficus panda</i>
370	G	Red Frangipani	<i>Plumeria rubra</i>
371	G	Ficus	<i>Ficus panda</i>
372	G	White Frangipani	<i>Plumeria alba</i>
373	G	Ficus	<i>Ficus panda</i>
374	G	Frangipani	<i>Plumeria</i>
375	G	Ficus	<i>Ficus panda</i>
376	G	White Frangipani	<i>Plumeria alba</i>
377	G	Ficus	<i>Ficus panda</i>
378	G	White Frangipani	<i>Plumeria alba</i>
379	G	Ficus	<i>Ficus panda</i>
380	G	White Frangipani	<i>Plumeria alba</i>
381	G	Ficus	<i>Ficus panda</i>

382	G	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
383	G	Ficus	<i>Ficus panda</i>
384	G	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
385	G	Ficus	<i>Ficus panda</i>
386	G	White Frangipani	<i>Plumeria alba</i>
387	G	Ficus	<i>Ficus panda</i>
388	G	White Frangipani	<i>Plumeria alba</i>
389	G	Ficus	<i>Ficus panda</i>
390	G	Champak	<i>Magnolia champaca</i>
391	G	Black board tree	<i>Alstonea schoralis</i>
392	G	Indian almond	<i>Terminalia catappa</i>
393	G	Black board tree	<i>Alstonea schoralis</i>
394	G	Indian almond	<i>Terminalia catappa</i>
395	G	Coconut	<i>Cocos nucifera</i>
396	G	Indian almond	<i>Terminalia catappa</i>
397	G	Coconut	<i>Cocos nucifera</i>
398	G	Indian almond	<i>Terminalia catappa</i>
399	G	Black board tree	<i>Alstonea schoralis</i>
400	G	Indian almond	<i>Terminalia catappa</i>
401	G	Black board tree	<i>Alstonea schoralis</i>
402	G	Indian almond	<i>Terminalia catappa</i>
403	G	Black board tree	<i>Alstonea schoralis</i>
404	G	Indian almond	<i>Terminalia catappa</i>
405	G	Indian almond	<i>Terminalia catappa</i>
406	G	Silver oak	<i>Grevillea robusta</i>
407	G	Trumpet Tree	<i>Tabebuia</i>
408	G	Silver oak	<i>Grevillea robusta</i>
409	G	Weeping fig	<i>Ficus benjamina</i>
410	G	Indian almond	<i>Terminalia catappa</i>
411	G	Champak	<i>Magnolia champaca</i>



412	G	Mahagony	<i>Swietenia macrophylla</i>
413	G	Coconut	<i>Cocos nucifera</i>
414	G	Champak	<i>Magnolia champaca</i>
415	G	Indian almond	<i>Terminalia catappa</i>
416	G	Coconut	<i>Cocos nucifera</i>
417	G	Silver oak	<i>Grevillea robusta</i>
418	G	Indian almond	<i>Terminalia catappa</i>
419	G	Indian almond	<i>Terminalia catappa</i>
420	G	Indian almond	<i>Terminalia catappa</i>
421	G	Mahagony	<i>Swietenia macrophylla</i>
422	G	Champak	<i>Magnolia champaca</i>
423	G	Mahagony	<i>Swietenia macrophylla</i>
424	G	Champak	<i>Magnolia champaca</i>
425	G	Indian almond	<i>Terminalia catappa</i>
426	G	Coconut	<i>cocos nucifera</i>
427	H	Black board tree	<i>Alstonea schoralis</i>
428	H	Black board tree	<i>Alstonea schoralis</i>
429	H	Silver oak	<i>Grevillea robusta</i>
430	H	Silver oak	<i>Grevillea robusta</i>
431	H	Indian almond	<i>Terminalia catappa</i>
432	H	Black board tree	<i>Alstonea schoralis</i>
433	H	Indian almond	<i>Terminalia catappa</i>
434	H	Jackfruit	<i>Artocarpus heterophyllus</i>
435	H	Indian almond	<i>Terminalia catappa</i>
436	H	Trumpet Tree	<i>Tabebuia argentina</i>
437	H	Solitary fish tail palm	<i>Caryota urens</i>
438	H	Black tea tree	<i>Melaleuca bracteata</i>
439	H	Indian almond	<i>Terminalia catappa</i>
440	H	Champak	<i>Magnolia champaca</i>
441	H	Black tea tree	<i>Melaleuca bracteata</i>

442	H	Indian almond	<i>Terminalia catappa</i>
443	H	Trumpet Tree	<i>Tabebuia argentina</i>
444	H	Indian almond	<i>Terminalia catappa</i>
445	H	Champak	<i>Magnolia champaca</i>
446	H	Indian almond	<i>Terminalia catappa</i>
447	H	Champak	<i>Magnolia champaca</i>
448	H	Trumpet tree	<i>Tabebuia impetiginosa</i>
449	H	Royal Palm	<i>Roystonea regia</i>
450	H	Indian almond	<i>Terminalia catappa</i>
451	H	Champak	<i>Magnolia champaca</i>
452	H	Silver Trumpet Tree	<i>Tabebuia argentina</i>
453	H	Champak	<i>Magnolia champaca</i>
454	H	Indian almond	<i>Terminalia catappa</i>
455	H	Trumpet Tree	<i>Tabebuia argentina</i>
456	H	Indian almond	<i>Terminalia catappa</i>
457	H	Trumpet Tree	<i>Tabebuia argentina</i>
458	H	Champak	<i>Magnolia champaca</i>
459	H	Solitary fish tail palm	<i>Caryota urens</i>
460	H	Black tea tree	<i>Melaleuca bracteata</i>
461	H	Indian almond	<i>Terminalia catappa</i>
462	H	Champak	<i>Magnolia champaca</i>
463	H	Black tea tree	<i>Melaleuca bracteata</i>
464	H	Champak	<i>Magnolia champaca</i>
465	H	Indian almond	<i>Terminalia catappa</i>
466	H	Black tea tree	<i>Melaleuca bracteata</i>
467	H	Bottle brush	<i>Callistemon lanceolatum</i>
468	H	Black tea tree	<i>Melaleuca bracteata</i>
469	H	Solitary fish tail palm	<i>Caryota urens</i>
470	H	Areca Palm	<i>Areca catechu</i>
471	H	Indian almond	<i>Terminalia catappa</i>

472	H	Bottle brush	<i>Callistemon lanceolatum</i>
473	H	Champak	<i>Magnolia champaca</i>
474	H	Indian almond	<i>Terminalia catappa</i>
475	H	Trumpet Tree	<i>Tabebuia argentina</i>
476	H	Christmas tree	<i>Aracuaria heterophylla</i>
477	H	Weeping fig	<i>Ficus benjamina</i>
478	H	Chinese banyan	<i>Ficus macrocarpa</i>
479	H	Black tea tree	<i>Melaleuca bracteata</i>
480	H	Sago palm	<i>Cycas revoluta</i>
481	H	Black tea tree	<i>Melaleuca bracteata</i>
482	H	Christmas tree	<i>Aracuaria heterophylla</i>
483	H	Weeping fig	<i>Ficus benjamina</i>
484	H	Bottle brush	<i>Callistemon lanceolatum</i>
485	H	Champak	<i>Magnolia champaca</i>
486	H	Indian almond	<i>Terminalia catappa</i>
487	H	Champak	<i>Magnolia champaca</i>
488	H	Indian almond	<i>Terminalia catappa</i>
489	H	Champak	<i>Magnolia champaca</i>
490	H	Royal Palm	<i>Roystonea regia</i>
491	H	old french cyperus	<i>Cupresses macrocarpa</i>
492	H	Duranta Gold	<i>Duranta erecta</i>
493	H	Ficus	<i>Ficus panda</i>
494	H	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
495	H	White Frangipani	<i>Plumeria alba</i>
496	H	Red Frangipani	<i>Plumeria rubra</i>
497	H	White Frangipani	<i>Plumeria alba</i>
498	H	Duranta Gold	<i>Duranta erecta</i>
499	H	Ficus	<i>Ficus panda</i>
500	H	Champak	<i>Magnolia champaca</i>
501	H	Indian almond	<i>Terminalia catappa</i>

502	H	Champak	<i>Magnolia champaca</i>
503	H	Royal Palm	<i>Roystonea regia</i>
504	H	Trumpet Tree	<i>Tabebuia</i>
505	H	Solitary fish tail palm	<i>Caryota urens</i>
506	H	Trumpet Tree	<i>Tabebuia</i>
507	H	Black tea tree	<i>Melaleuca bracteata</i>
508	H	Areca Palm	<i>Areca catechu</i>
509	H	Trumpet Tree	<i>Tabebuia argentina</i>
510	H	Bottle brush	<i>Callistemon lanceolatum</i>
511	H	Champak	<i>Magnolia champaca</i>
512	H	Bottle brush	<i>Callistemon lanceolatum</i>
513	H	Champak	<i>Magnolia champaca</i>
514	H	Indian almond	<i>Terminalia catappa</i>
515	H	The Singapore Graveyard Flower	<i>Plumeria obtusa</i>
516	H	White Frangipani	<i>Plumeria alba</i>
517	H	Ficus	<i>Ficus panda</i>
518	H	Trumpet Tree	<i>Tabebuia</i>
519	H	Indian almond	<i>Terminalia catappa</i>
520	H	Champak	<i>Magnolia champaca</i>
521	H	Ficus	<i>Ficus panda</i>
522	H	Weeping fig	<i>Ficus benjamina</i>
523	H	Jackfruit	<i>Artocarpus heterophyllus</i>
524	H	Indian almond	<i>Terminalia catappa</i>
525	H	Jackfruit	<i>Artocarpus heterophyllus</i>
526	H	Bottle brush	<i>Callistemon lanceolatum</i>
527	H	Trumpet tree	<i>Tabebuia impetiginosa</i>
528	H	Weeping fig	<i>Ficus benjamina</i>
529	H	jackfruit	<i>Artocarpus heterophyllus</i>
530	H	Bottle brush	<i>Callistemon lanceolatum</i>
531	H	Trumpet Tree	<i>Tabebuia argentina</i>

532	H	White Frangipani	<i>Plumeria alba</i>
533	H	Weeping fig	<i>Ficus benjamina</i>
534	H	Agave	<i>Furcraea mediopicta</i>
535	H	Black tea tree	<i>Melaleuca bracteata</i>
536	H	Indian almond	<i>Terminalia catappa</i>
537	H	Black tea tree	<i>Melaleuca bracteata</i>
538	H	Indian almond	<i>Terminalia catappa</i>
539	H	Black tea tree	<i>Melaleuca bracteata</i>
540	H	Indian almond	<i>Terminalia catappa</i>
541	H	Black board tree	<i>Alstonea schoralis</i>
542	H	Jamun	<i>Syzygium cumini</i>
543	H	Black board tree	<i>Alstonea schoralis</i>
544	H	Shining sumac	<i>Rhus copallinum</i>
545	H	Tuja	<i>Cyprus occidentalis</i>
546	H	Shining sumac	<i>Rhus copallinum</i>
547	H	Tuja	<i>Cyprus occidentalis</i>
548	H	Shining sumac	<i>Rhus copallinum</i>
549	H	Tuja	<i>Cyprus occidentalis</i>
550	H	Lady Palm	<i>Rhapis excelsa</i>
551	H	Shining sumac	<i>Rhus copallinum</i>
552	H	Tuja	<i>Cyprus occidentalis</i>
553	H	Shining sumac	<i>Rhus copallinum</i>
554	H	Tuja	<i>Cyprus occidentalis</i>
555	H	Silver Oak	<i>Grevillea robusta</i>
556	H	Silver Oak	<i>Grevillea robusta</i>
557	H	Teak	<i>Tectona grandis</i>
558	H	Teak	<i>Tectona grandis</i>



## SDG-16 INSTITUTIONS

It includes programs mainly aimed at promotion of the rule of law and justice and awareness/ action components intended for reduction in violence, exploitation and trafficking of children, organized crime, corruption etc. It requires two types of interventions such as preventive and curative interventions. Preventive interventions include interventions that improve people's standard of living, say opportunities for employment and growth, labour rights, food security, health, education etc. Researches has revealed that rising living standards make people less prone to committing of crimes; a collapsing economy that impoverishes people breeds frustration and hopelessness, which often drives people to commit crimes (Kala, 2007). Therefore, it is probable that the achievement of the other SDGs will raise the standard of living of

people and reduce the incidence of crime. The curative interventions rise from law enforcement mechanisms such as the police, investigative and intelligence institutions and also the judiciary. Effective programs of strengthening these institutions may help in reducing crime. More and more studies are to be undertaken to identify gaps and weaknesses in these institutions and suggest reforms. To have effective, accountable and transparent institutions at all levels and democratic decision-making processes. Some schemes of the Aiming these, Government of India have launched many initiatives like the Integrated Child Development Services (ICDS), National Rural Drinking Water Programme (NRDWP), Swachh Bharat Mission, Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) etc. These have provisions for community participation also in the administration of it. For example, in the NRDWP, Panchayati Raj Institutions (PRIs) are given the responsibility of managing the administration of the service, while in the case of the MGNREGS, the panchayats decide the

work priority and have the power to decide on the public works that will be undertaken within their jurisdiction.

The Aadhar card scheme is attempting to provide legal identify to all citizens. Implemented by the Unique Identification Authority of India, the Aadhaar scheme is considered one of the world's largest national identification number projects. Besides creating a biometric-based legal identity, it also assists in providing direct transfers of government subsidies to beneficiaries who are identified by their Aadhaar cards.

Government of India, in view of expanding public access to information and protection of fundamental freedoms have plans to extend ICT access to the entire population. India's Right to Information Act allows citizens to request information from public authorities, which are required to reply within specified time periods. The Act also requires every public authority to put certain things in public domain for wide dissemination. These are efforts to provide access to information to all citizens. Goal 16 is an important




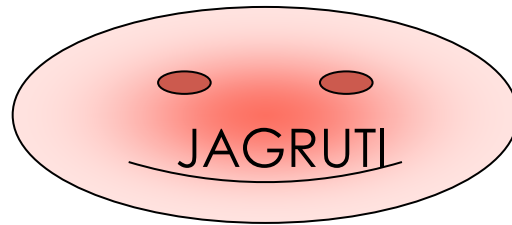
goal for harmonious co-existence of individuals in a democratic society. The aims may be sub-divided into:

16.1 Significantly reduce all forms of violence and related death rates everywhere  
 16.2 End abuse, exploitation, trafficking and all forms of violence and torture against children  
 16.3 Promote the rule of law at the national and international levels, and ensure equal access to justice for all  
 16.4 By 2030 significantly reduce illicit financial and arms flows,

strengthen recovery and return of stolen assets, and combat all forms of organized crime  
 16.5 Substantially reduce corruption and bribery in all its forms  
 16.6 Develop effective, accountable and transparent institutions at all levels  
 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels  
 16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance  
 16.9 By 2030 provide legal identity for all including birth registration

16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements  
 16.a Strengthen relevant national institutions, including through international cooperation, for building capacities at all levels, in particular in developing countries, for preventing violence and combating terrorism and crime  
 16.b Promote and enforce non-discriminatory laws and policies for sustainable development.

	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	
Activity		Status
Research on peace & justice		Yes – 2 nos
Publishing university policies on organized crime, corruption and bribery		Yes
Developing policies, procedures and plans to ensure that the campus is safe for all staff, students and visitors		Yes, security, CCTV, and Ambulance in place
Ensuring that procurement policies and procedures clearly indicate an intolerance to working with any companies known or found to be involved in exploitation of people		Yes
Ensuring that investment policies preclude investment in industry that deals in arms, human trafficking and/or modern slavery		Yes
Ensuring that the policies and culture of the institution clearly indicate that bribery, corruption, violence, crime and acts of terrorism is unacceptable		Yes
Organizing cross-cultural activities in campus		Yes, NSS, NCC
Ensuring that all staff and students have access to justice and information about their rights		Yes, Through Legal studies School



“Jagruti” an annual Social Outreach Program initiated by REVA University (Jagruti I- Towards Voting Rights Jagruti II- towards Global Warming) 2. Objectives of the Practice What are the objectives / intended outcomes of this “best practice” and what are the underlying principles or concepts of this practice. Jagruti is the Social Outreach Program initiative by REVA University intended to serve the society through students by instilling in them the sense of social responsibility. The events under Jagruti were carried out in Phases I and II, Phase I being taken by School of Commerce and Management and Phase II by School of Applied Sciences, REVA University with the intention of reaching out to the community to address the challenges in terms of sensitizing the public towards the Social responsibility of importance of voting and creating awareness towards global warming, a serious environmental

concern. Students were involved in the entire process to give them an opportunity to serve the community and make them better Samaritans by directly involving in these initiatives. Jagruti-I was the first event under REVA Electoral Literacy Association, an organized effort to spread a sense of civic responsibility towards voting among citizens and thereby inducing their democratic sensibility. Objectives included, Creating awareness on the electoral process of the country, aiding voters' contribution through activities organized by students, providing platforms for people to interact and expand on their knowledge of democratic processes, encouragement of people's interaction with the political system, Promoting accountability towards civic responsibility, helping citizens make informed choices, introducing and enlightening citizens on Digital electoral procedures and hands on

engagement with citizens of the constituency to take the cause forward by setting an example. The program initiated on 16<sup>th</sup> November 2018. Jagruti-II was the second event to address the challenges of Global warming by spreading awareness and involving in activities to mitigate the consequences of Global warming. Despite several lakes and a good amount of natural wellbeing, Bengaluru is facing the problem of rising pollution, increase in atmospheric temperature and several other environmental hazards. The increase in pollution and global warming, not only in Bengaluru but throughout the nation and around the globe has become a threat for existence to humankind. Keeping this in mind, REVA University with the able guidance of Dr P. Shyama Raju, Chancellor, REVA University initiated this projects of Jagruthi I. Objectives included create awareness on global warming, sensitize Schools and Colleges





towards global warming, provide platforms to interact with people about their responsibilities towards the environment, encouragement of people's towards understanding relevance of waste segregation and management of waste, promote cleanliness drives in major areas of Bengaluru and nurture the young minds of our nation towards environmental hazards. The common purpose of both the initiatives is to move beyond the portals of the classroom in seeking to integrate with larger communities outside and go through a transformative and collaborative learning process. The campaign which began in July, 2019 continued actively on an active, aggressive mode till the culmination on the 19th of June, 2020. 3. The Context what were the contextual features or challenging issues that needed to be addressed in designing and implementing this practice (in about 150 words). Students and faculty members were given orientation on how to take the two phases forward and the logistics involved in conducting the events planned for both the phases of Jagruti.

Designing the practices did not give many challenges as all the requirements to take the initiatives forward were given by the management. The challenges were in implementing the practice as it demanded the participation of public and seeking permissions from Public authorities such as BBMP to organize various events in both the phases. The major challenge involved in phase 1 was the level of preparation required to orient students and faculty members by conducting workshops for them. In these workshops electoral officers participated to guide the group to a better understanding of the mission and its importance. BBMP officials were a crucial part of this door to door campaign. The other challenge was to change the mindset of the public and convince them the importance of casting votes for selecting the right leaders to lead the country. The challenges in Phase 2 included the maintenance of the saplings planted in Kogilu lake as it was far from the University. But with the help of student groups recognized for maintenance, watering was done on a regular

basis. Another challenge was the uncertainty brought by COVID-19 scenario because of which few planned events could not be executed. 4. The Practice Describe the practice and its uniqueness in the context of India higher education. What were the constraints / limitations, if any, faced (in about 400 words)? Jagruti I was the initiative to create awareness regarding the social responsibility of voting. This was inturn carried out in three phase Phase 1 'Jagruti' conducted 'DeekshaVidhana Event' on 19th November 2018. More than 800 students of REVA University and its allied educational institutions participated in this event as volunteers to spread the message of voting, beginning with conducting an awareness electoral centric survey in Byatarayanapura Constituency of Bengaluru. Close to 50 lecturers participated in the campaign. Dr. P. Shyama Raju, Hon'ble Chancellor, REVA University initiated this campaign. Two round workshops were conducted for students and lecturers who were involved in this campaign. In these workshops electoral officers participated to guide the



group to a better understanding of the mission and its importance. BBMP officials were a crucial part of this door to door campaign. Phase 2 Encouraged by the success of the survey, REVA spearheaded Jagruti Phase 2, a more participatory podium. Students engaged residents with powerful enactments, songs, performances and more. This was a step towards "realizing the vision of a better nation" Phase 3 The emphasis was on promotional mode: Digital (Google, Whatsapp & All Social Media Channels). Jagruti Phase 3 was a digital platform where voting as a right is being endorsed hoping to capture modern social media aficionados. The campaign was transformed with WhatsApp, Twitter, Website, Face book, Vlogs and blogs as the forums for communication. Jagruti II-Awareness towards Global Warming Many activities were carried out under Jagruti II to create awareness among general public towards global warming. As the first step, Department of Biotechnology, School of Applied Sciences organized an awareness program on global

warming for the students and faculty members of Government High school, Jakkur, Bangalore on 27th August 2019, as a part of Jagruti towards Global Warming. The next event was an "Awareness campaign and Cleanliness Drive of Non-biodegradable wastes" as a part of Jagruti towards Global warming. The first session of this drive was cleaning up of Ltd Bangalore An ISO/OHSAS/NABET/NABL/MoEF & CC Certified EIA consultant Page 97 of 179 Non Biodegradable wastes at Nandi Hills, Bengaluru. It was conducted on September 14th, 2019. 200 students from various departments of the School were a part of this campaign along with 20 faculty members. As a step towards a clean Bangalore, On the occasion of Gandhi Jayanthi, the School of Applied Sciences organized an Awareness Campaign and Cleanliness drive of Non Biodegradable wastes at Lalbagh Botanical garden. Team Jagruti from the School of Applied Sciences was also a part of the Plantation drive held at Jakkurlake on 24-11-2019. A team of 6 members actively took part and planted 70 saplings

provided by the L & T limited. As an initiative to nurture young minds, Team Jagruti took a firm initiative in terms of educating young minds concerning the issue of global warming by spreading awareness on global warming Team visited different schools like Yashaswi Vidyanikethana School, Kattigenahalli, Government Higher Primary School and Palanahalli Government School and Mathew Memorial English School, Ramamurthy Nagar on 22.11.19, 30.11.19 and 10.12.19. The students at the school were addressed on Global warming, its consequences and measures to avoid them. A quiz competition on Global warming was conducted and prizes were given to the top 5 students. The awareness program regarding waste segregation was a door to door campaign, wherein the volunteers created awareness among the people on different waste segregation methods and addressed then about the importance of switching towards the usage of eco-friendly practices in day to day life. The volunteers visited around 1500 households in and around Nagashettalli and Manjunath Layout and



distributed jute bags conveying the message of no to plastics. The final event organized was with respect to creating awareness among students regarding the precautions to be taken against COVID-19. Department of Biotechnology, School of Applied Sciences conducted an awareness program towards global warming and COVID -19 at St. John English School, Amruthahalli, Bangalore on 10.3.2020. The awareness program initiated with the presentation about global warming, its complicated scenario and measures to reduce this threat of global warming. Simultaneously another presentation was delivered by the students which provided information about COVID-19, about the Corona virus and all precautionary measures which would help a common man stay away from this life-threatening disease. Both the initiatives were Project based learning for the students as they could connect to the real world outside and implement the knowledge learned in classrooms into actions for the betterment of the society. 5. Evidence of Success Provide evidence of success such as

performance against targets and benchmarks, review/results. What do these results indicate? Describe in about 200 words. More than 1 Lakh homes were visited in Jagruti Phase 1. With this staggering achievement, REVA became one of the pioneers to herald a cause so closely associated with national development. The efforts that found fruition with the hard work and commitment of REVA, was recognized on 25 January 2019, International Voter's Day, where Dr. P. Shyama Raju, Honorable Chancellor, REVA University, was felicitated by the Governor of Karnataka, Shri. Vajubhai, RudabhaiVala along with other dignitaries of the State Election Commission for ushering in social awakening through Jagruti. Phase 2 is the beginning of marching this awakening to action. Initiated in the month of November 2018, Jagruti Phase 1 & 2 have made an impact and impressed upon more than 1 Lakh homes of Bengaluru. To commemorate the realization of the campaign, where more than 800 students and 200 faculty members supported by the very involved members of Bruhat Bengaluru

Mahanagara Palike (BBMP) participated, REVA hosted an Appreciation Meet. Shri. P. S. Vastrad, IAS (Retd.), Karnataka, Senior Consultant, SVEEP, (Election Commission of India), was the esteemed Chief Guest with Dr. P. Shyama Raju, Honourable Chancellor, REVA University presided over the event. From students perspective also these two initiatives were huge success as Students gained the intellectual flexibility necessary to view environmental questions from multiple perspective.

- Students learned to communicate with laymen and could spread awareness to them on waste segregation
- Reflected upon their internalized values system, students will continue to evolve an individual vision of harmonious and sustainable interaction among humans as well as between humans and the rest of the natural world.
- Understood the criticality of the current environmental situation and the need of the hour to find a solution.
- Students participated in developing a positive change in campus, local, national and global communities.
- Students learned to work positively and cooperatively with

their team which is necessary in terms of career building. • Built leadership qualities. All the activities taken up through Jagruti involved students moving beyond the confines of formal classrooms and learning and sharing valuable skills as well as lessons in environment conservation. The biggest take away from the initiative was a connect with environmental concerns and also an awareness of

the contribution from each one of us towards preserving the environment. The number of events the students participated in fetched them marks as a part of their assignments. Way by being socially responsible citizens, students could also gain some personal academic benefits. 6. Problems encountered: The problems encountered were initial difficulty in changing the mindset of the public and convince

them the importance of casting votes for selecting the right leaders to take the nation forward. The difficulty of managing the resources to replace the usage of Plastic in the community was another challenge. Managing human resource for maintenance of saplings planted in Jakkur and Kogilulake was difficult, but with the cooperation of students and faculty members regular watering was done.

## Jagruthi I







## Jagruthi Phase-II











## SDG-17 SUSTAINABILITY

Poverty eradication is established as the top most priority of the post 2015 development agenda, ensuring that no one is left behind. Past experiences of India's development strategies indicate that economic growth along with targeted policies for the poor can result in poverty reduction. Poverty eradication will require economic growth through education cum trainings in skills-based / vocational subjects and promotion of business opportunities. It should aim to generate income and employment-based initiatives like setting up Small and Medium Enterprises (SMEs). Since, majority of the poor belong to the rural areas of the country that depend on agriculture, it

necessitates public investments in the field of agriculture also. Parallel to it, understanding that cities are the nuclei of economic growth, it is equally important to develop infrastructure and facilities in the urban area also where agriculture is not a main component. India has been a large contributor to South-South Cooperation and plays a key role in strengthening the financial stability of South Asia for enhancing international cooperation in the development, transfer and dissemination of technologies which may further aid in the implementation of SDGs. In particular, India must leverage technologies to enhance agricultural productivity, improve healthcare systems, reversal of degradations to environment and enable sustainable production processes. With food security as a fundamental concern and food waste, one of the biggest challenges that developing countries like India face, technology for

infrastructure and capacity requirements for preventing food loss is of high priority. The "Make in India" campaign initiated by the Government aims towards these. The need for sustainability even while expanding production capability requires technology. Goals 9 and 11 that focus on sustainable industrialization and urban infrastructure respectively, need new technologies to ensure that these initiatives involve minimal carbon footprints.

India is estimated to have provided over USD 3 billion of technical assistance to 156 developing countries. Grants that India provides are mostly for rural development, education, health, technical co-operation and loans for infrastructure.

India would need to develop monitoring and evaluation mechanisms in order to complement growth and development measures such as GDP growth with new indicators for sustainability.

	Strengthen the means of implementation and revitalize the global partnership for sustainable development	
Activity		Status
Research on SDG collaborations and strategies ahead		Yes – 72 nos
Collaborations with local NGO for SDG implementation		Yes
Collaborations with government programs in SDG implementations		No
Student volunteering programs for SDG implementations		Yes, NCC, NSS
Publication of SDG performance reports		No
Dedicated courses that address sustainability and SDGs		Yes, Organic Farming, Indian Constitution etc
Outreach educational activities for the community on SDGs		Yes, Abhivrudhi- education on wheels

## ORGANIC FARMING

Organic Farming at REVA University: Holistic Farming for Sustainable Agriculture Department of Biotechnology, School of Applied Sciences implemented the concept of organic farming by growing vegetable crops such as French Bean, Dolichos bean, Spinach, Coriander and Amaranthus in the campus in organic manner. Under the guidance of Prof. Shilpa and Prof. Renuka Madhu, of Dept. of

Biotechnology, the students of M.Sc Biotechnology were involved in the work. The seeds were procured from IHR, Bangalore. The seed treatment was carried out with biofertilisers such as Rhizobium, Trichoderma, and Pseudomonas spp. Furrow planting was carried out for legumes. The nutrients were applied in the form of vermicompost, Farm Yard Manure and Dr. Soil, an organic nutrient product.

Nutrition was given at regular intervals. Regular watering was done to ensure better growth. Very good yield was obtained from these plants. The harvested products were given to the University Mess. This initiative was taken to spread the awareness about the importance of organic farming for ensuring sustainable agriculture, the products free of pesticides fit for healthy human consumption.





## 2. PERFORMANCE AUDIT (GREEN AUDIT)

The Green auditing conducted in REVA University under the performance audit by applying the guidelines of Environment Performance Evaluation (EPE) is guided by the principles of Environment Management Systems.

in terms of how eco safe it is, as per the guidelines provided are energy use, transport and greenhouse gases, water use, wastewater/effluent, emissions, waste management, pollution prevention/hazardous and potentially hazardous substances, major incident prevention and management, contaminated land/soil and Groundwater, pollution, prevention, land use and biodiversity. The industries, organizations and institutions use the Green Audit system to find out their suitability for use or to advise what's required to make a site suitable for use. The National Assessment and Accreditation Council

(NAAC) take a serious note of these aspects while grading the educational institutes. Located at Yelahanka, close to Bangalore International Airport, REVA University campus offers the best of both worlds: city and suburb.

Following are the phases and criterion adopted for the preparation of this green environmental report. The steps as well as the scope were determined after two round preliminary discussions with learned academicians representing various schools/ departments of the audit entity holistically.

### A. PRE-AUDIT

#### A.1 Planning Environmental Performance Evaluation (EPE)

The environmental quality of a site, greatly affects those that are associated with it. The parameters used to determine any site

Stage	Target	Means to achieve target
PRE-AUDIT	Planning EPE	General: Audit entity to establish means for the institution to identify and obtain information from relevant interested parties.
		Identifying potential interested parties that may differ widely in relationship to the organization, their stake in the organization, their potential contributions in EPE planning and the way they express & communicate their interests.

PRE-AUDIT	Planning EPE	Identifying issues of interested parties: (i) Issues related to financial interests (ii) Issues related to environmental interests or to the development of public policy
		Identifying the views of interested parties
		Selecting indicators for EPE
		Selecting Key Performance Indicators(KPI)
		Deciding the approaches for selecting indicators for EPE
		Selecting Management Performance Indicators (MPI)
		Selecting Operational Performance Indicators (OPI)
		Selecting Environmental Condition Indicators (ECI)
ON-SITE AUDIT	Environmental quality assessment	Monitoring at site
	Review background information	Interaction with the stakeholders
	Assessing the ground realities	Field survey and investigations
POST AUDIT	Analyzing audit evidence	Compilation & interpretation of data
	Drawing audit conclusions	Draft Report preparation
	Internal reporting & evaluation	Conducting exit conference and eliciting audit entity's response to the draft report
	External reporting & communication	Preparing the final report considering the audit entity's responses to audit conclusions and suggesting recommendations

Audit of the environment usually evokes negative responses from the audit entities as the capability and knowledge of the auditor in this specialized area is often challenged. Further, solutions to environmental problems are more empirical and not backed by consensus amongst experts. This poses a problem for the auditors in arriving at definite conclusions and in suggesting appropriate recommendations or so. Another problem faced by

auditors is that environmental issues involve multiple agencies and there is difficulty in identifying bodies which take ownership of critical environmental concerns. These obstacles faced by auditors are usually addressed by involvement of concerned stakeholders in all stages of the audit process, equipping auditors with better knowledge/skills and sharing of experiences with other audit teams through regular interaction. REVA

University identified Prof. (Mrs.) Shilpa BR, Associate Professor, Deputy Director, School of Applied Sciences, REVA University AND Prof. (Mrs.) Renuka Madhu, Associate Professor, Department of Biotechnology, School of Applied Sciences as the nodal officer to liaison with the audit processes. Further, Prof. (Mrs.) Renuka Madhu successfully coordinated all the requirements of the audit team by establishing the means for the REVA

University in obtaining information from the concerned stakeholder departments on the identified items of the audit team. Hence, the audit team did not face any such obstacle from the audit entity for which the audit team is fully thankful to the REVA University Management trustees/authorities and specifically to Dr. P. Shyama Raju, Hon'ble Chancellor, REVA University, Dr. M Dhanamjaya, Vice

Chancellor, REVA University, Dr. N Ramesh, Registrar, REVA University Dr. D V S Bhagavanulu, Dean- Planning & Development, Department of Administration, REVA University, Dr Beena. G, Controller of Examination, Dept of Evaluation, REVA University, Dr. B.P Divakar, Dean | Research and Innovation Council, Research and Development, REVA University Col. Nataraj Kuppasada, Director (Admin), REVA University

Prof. Shilpa BR, Associate Professor, Deputy Director, School of Applied Sciences, REVA University Prof. Renuka Madhu, Associate Professor, Department of Biotechnology, School of Applied Sciences, REVA University School Directors, Vertical heads of IQAC and NAAC-7 coordinators of all schools across REVA University for giving all the necessary support and required inputs to the team in successfully fulfilling the task on time.

#### A.1.2. Potential Interested Parties

Identified potential interested parties are:

- i. Management representatives
- ii. Employees (Teaching & non-teaching)
- iii. Contractors & suppliers
- iv. Lending institutions and insurers
- v. Regulatory and legislative bodies
- vi. Local inhabitants
- vii. Communication media (print, visual & electronic)
- viii. Traders, businessmen & consultants
- ix. Consultants
- x. Recruiting partners
- xi. Associating Foreign Universities
- xii. General public
- xiii. Trustees and capital providers
- xiv. Family members of employees staying in quarters
- xv. Student community
- xvi. Academic visitors
- xvii. Hospitals
- xviii. NGOs





**A.1.3. Issues of interested parties**

A.1.3.1 Issues related to financial interests

Do the REVA University create an excellent environment for learning by way of making investments in providing facilities to the students in terms of:	
Ambiance stimulating intellectual thinking and academic competency	<input checked="" type="checkbox"/>
Audio-visual teaching aids	<input checked="" type="checkbox"/>
Auditorium	<input checked="" type="checkbox"/>
Back up with DG sets	<input checked="" type="checkbox"/>
Equipment's	<input checked="" type="checkbox"/>
Ergonomic chairs	<input checked="" type="checkbox"/>
Gymnasiums	<input checked="" type="checkbox"/>
Hostel facilities	<input checked="" type="checkbox"/>
Hygienic food	<input checked="" type="checkbox"/>
Indoor stadiums	<input checked="" type="checkbox"/>
Laboratory	<input checked="" type="checkbox"/>
Library books	<input checked="" type="checkbox"/>
Medical facilities	<input checked="" type="checkbox"/>
Providing pure drinking water	<input checked="" type="checkbox"/>
Security arrangements	<input checked="" type="checkbox"/>
Spacious classrooms	<input checked="" type="checkbox"/>
Stationery	<input checked="" type="checkbox"/>
Transportation	<input checked="" type="checkbox"/>
Vending machines	<input checked="" type="checkbox"/>

Does the University have annual budgetary allocations for environmental costs	Yes
How many incidences of environmental liability in the past three years	No
How many incidences of environmental liabilities are now in existence	No
How many positive environmental initiatives are now going on	Three
Number of employees exclusively engaged in maintenance of outdoor area of the campus	Ten
Number of employees exclusively engaged in maintenance of indoor area of the campus	Ten
Water treatment units established inside the campus, if any	Yes, 600 KLD units & enhanced capacity of 1800 KLD exist
Means of ensuring safe drinking water inside the campus	Quality of RO water supplied is regularly checked.
How the leakages, if any, of the pipelines are managed? In-house or outsourced	In-house
Is any manure produced inside the campus from biodegradable waste?	Yes, used for gardening.
Is any quantity of manure sold out or distributed free of cost?	Utilized inside the campus and distributing freely for tree plantations.
Any equipment installed in the campus for WPC or APC	Only STP for water pollution control
<p><b>Observations:</b> Quarterly review on the financial achievement versus physical achievement on environment cost budget allocations made is a good practice in ensuring environment upkeep.</p>	
<p><b>Inferences:</b> Jagruti 1 &amp; 2, REVA Vanamahotsava, adopting Government schools under the initiation of Abhivrudhi, keeping plastic free campus, STP operations, solar &amp; wind energy utilizations, rainwater harvesting, bio gas plant, battery operated golf cart etc. showcases the University's commitment to environment. Regular manpower is ensured for indoor and outdoor area maintenance.</p>	
<p><b>Further scope for improvement:</b> Continual improvement of environmental activities may be ensured.</p>	

A.1.3.2 Issues related to environmental interests

Is the REVA University campus aesthetically elegant	Yes
Do the REVA university have an environmental policy	Documented policy exists
Do the environmental policy have Covid perspective	Yes
Do the REVA University incorporated environment management in its vision/ mission and/or objectives	The environmental mission/ vision is an integrated part of the philosophy of REVA University management; and the steps taken by the University to have a Green Audit on its campus is a proof of evidence
Is there any regular health checkup programmes for its employees	Yes, also provide health insurance to employees.
How many cases of contagious diseases are reported from the University campus, last year	Nil
Whether the greenbelt area of the campus exhibit considerable increase every year	Yes ~ 10 % increase
What steps are laid down to ensure effective waste management inside the campus	STP, Organic waste converter, composting, biogas plant etc.
How far the legal and regulatory mandates are complied with	Academic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Safety <input checked="" type="checkbox"/> Health <input checked="" type="checkbox"/>
Do the campus have vegetable/ fruits cultivations	Yes

**Observations:** Environmental policy has been strengthened considering Covid perspective

**Inferences:** Rainwater harvesting of 8 Lakh litres per year is a good initiative. Assigned duties and responsibilities at different levels to ensure environment up keep is effectively managed.

**Further scope for improvement:** Ways and means of storing the whole rainwater in the campus may be explored.

#### A.1.4 Views of interested parties

Any showcasing of in & off-campus surveys on environmental matters	Yes
Any designated personnel to deal with environmental matters in the campus	Prof. (Dr.) Beena. G, Controller of Examination, Dept of Evaluation,  Prof. (Dr.) Shilpa BR, Associate Professor, Deputy Director, School of Applied Sciences,  Prof. (Dr.) Renuka Madhu, Associate Professor, Department of Biotechnology, School of Applied Sciences
Any precedence of inviting suggestions from the employees for environment management	Yes
Any significant meeting/ workshop held in association with other corporate/ experts on environmental matters during the academic year 2020-21 & 2021-22	Yes
Any citizen advisory group constituted for off-campus environment management	No
Any public gatherings/ meetings held on environmental matters	Yes
Any review of public statements related to environment	Yes, reviewed, attempted and immediately implemented
Any market research conducted	Yes
Any voluntary guidelines or standards specified by the university for its stakeholders	Guidelines prescribed to follow safety & legal requirements; but not any standards prescribed by the university
Do any electronic information exchange exist on environment	Yes
Do the university have participations in public interest groups	Yes
Whether the University practices direct communication with the neighbours	Yes, in constant interactions with the local villagers.
How far the University shall attend/ respond to the information that may appear in media or any other source of public information	Reviewed, and suggestions immediately implemented.

**Observations:** In-house surveillance survey on environment is conducted.

**Inferences:** Collective responsibility on environment management is ensured by inviting suggestions from various stakeholders including employees.

**Further scope for improvement:** constituting an advisory group for off campus environment management may be sorted out.

## A.2. Characteristics of the EPE indicators or EPI

### A.2.1 Selecting indicators for EPE

Does the University regularly follow green initiatives	Yes. Biodiversity listing/ botanical classification, vermin composting and study on the effect of elevated CO2 in human nutrition level of blood.
Consistency with environmental commitments	Yes
Ability to provide information on current or future trends in environmental performance	Yes, regular green audits underline it
Programs for regular assessment of water table	Yes, annually observed
% of annual increase in greenbelt	Regular 10 % increase
Number of trees cut in the last year	5 trees fallen, 15000 seedlings planted
Number of tree plantations made in the last year	15000 saplings planted
Number of trees in the campus with big canopy/ umbrella species	1690 nos
Quantum of manure production in the last year	46800 km per year
Number of times, drinking water in tankers is fetched from outside	Nil
Biodiversity labeling inside the university campus	Yes
Periodicity of environmental monitoring	Daily

**Observations:** Yearly observation of water table is being done. Biodiversity labeling of trees every year is a very good approach.

**Inferences:** Maintaining 1690 trees of big canopy is appreciable. Maintaining self dependable source of water needs special mention.

**Further scope for improvement:** Publication of a coffee table book on the campus biodiversity and its unique aspects may be considered.

Environment Performance Indicators (EPI) identified are:

- i. Water environment
- ii. Air environment
- iii. Waste management
- iv. Energy management
- v. Building management
- vi. Transport management
- vii. Curriculum management
- viii. Emergency response procedures
- ix. Transparency & response to enquiries & complaints
- x. Covid perspectives etc. are identified as the environment performance indicators.



**A.2.2 Key Performance Indicators (KPI)**

While selecting Key Performance Indicators (KPI), the main aspect considered was (i) its importance to relevant interested parties (e.g. Customers, regulatory authorities etc.) and (ii) its relevance to the business objectives.

Key Performance Indicators identified are:

**A. 2. 2 .1 Water environment**



↑ Waste water treatment system ↓







↑ Rainwater Pits ↓





← Sewage Treatment Plant



Sewage Treatment Plant



Any self dependable own source of water	Yes, Bore well
Water recycling & reuse adoption	Yes
Reduction in per capita water consumption	~ 10 %
Groundwater recharge	Yes 200 nos of 20 ft depth rain pits exist
Rainwater storage & use	8 Lakh units per year
Time taken for water leakage repair	Immediately undertaken
Frequency of water tank cleaning	Every quarter, and after every repair works in the pipeline etc.
Occurrence of water borne diseases	Nil
Identified water stagnant areas inside the campus	Nil
Frequently observed throat pains/ sore throats among students/ employees	Nil
Functional STP	Yes
Water quality meeting the IS 10500: 2012 drinking water standards	Yes

**Observations:** Rainwater harvesting is effectively done. Water recycling and re-use are practiced. Any water borne diseases are not reported in the campus.

**Inferences:** Zero discharge is aimed and own source of water is maintained. The water quality meeting TS 10500:2012 drinking water standards is ensured.

**Further scope for improvement:** A comprehensive plan to capture all the rainwater in the campus may be thought of. Regular monitoring of own source bore well water may be ensured.

#### A. 2.2.2 Air environment



↑  
Air pollution tolerant species of plants  
↓



Open combustion	No
Asbestos roofing	No
Frequent eye irritations	No
Incinerators put to use	Yes
Habitable spaces ventilated with outdoor air	Yes

Frequently observed respiratory ailments	No
Indoor air quality monitoring	Yes
Greenbelt having air pollution tolerant species	Yes
Air quality meeting NAAQM standards	Yes

**Observations:** All habitable spaces are ensured that they are ventilated with outdoor air environment. Indoor air quality is regularly monitored. A lot of butterflies were seen inside the campus area denoting good ambient air quality.

**Inferences:** Open burnings are not at all practiced. Eye irritations/ respiratory ailments are not frequently observed denoting clean ambient air. There is no evidence of objectionable odour in the campus.

**Further scope for improvement:** Displaying air quality inside the campus may be thought of. Use of incinerators may be discouraged.

A. 2. 2.3 Waste management



Bins for collecting waste



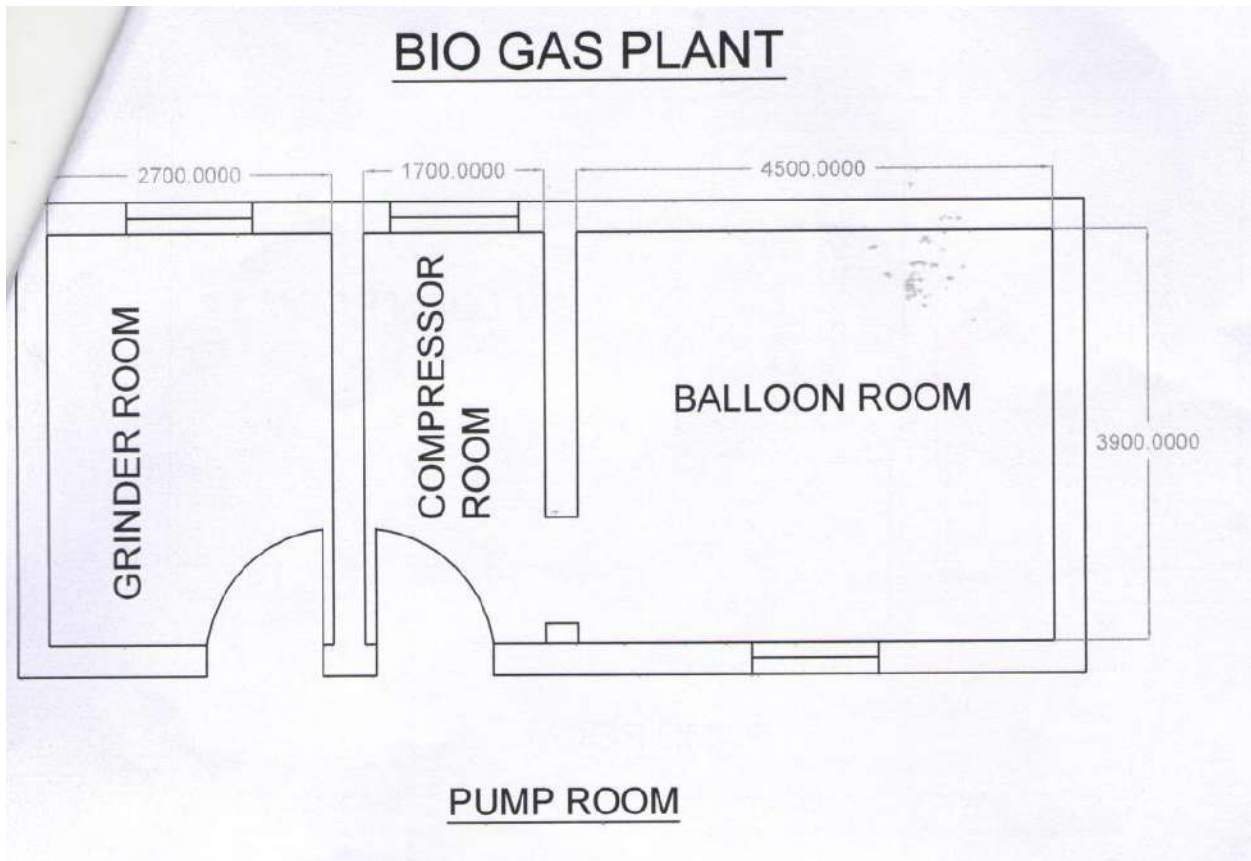
↑ organic waste converter ↓

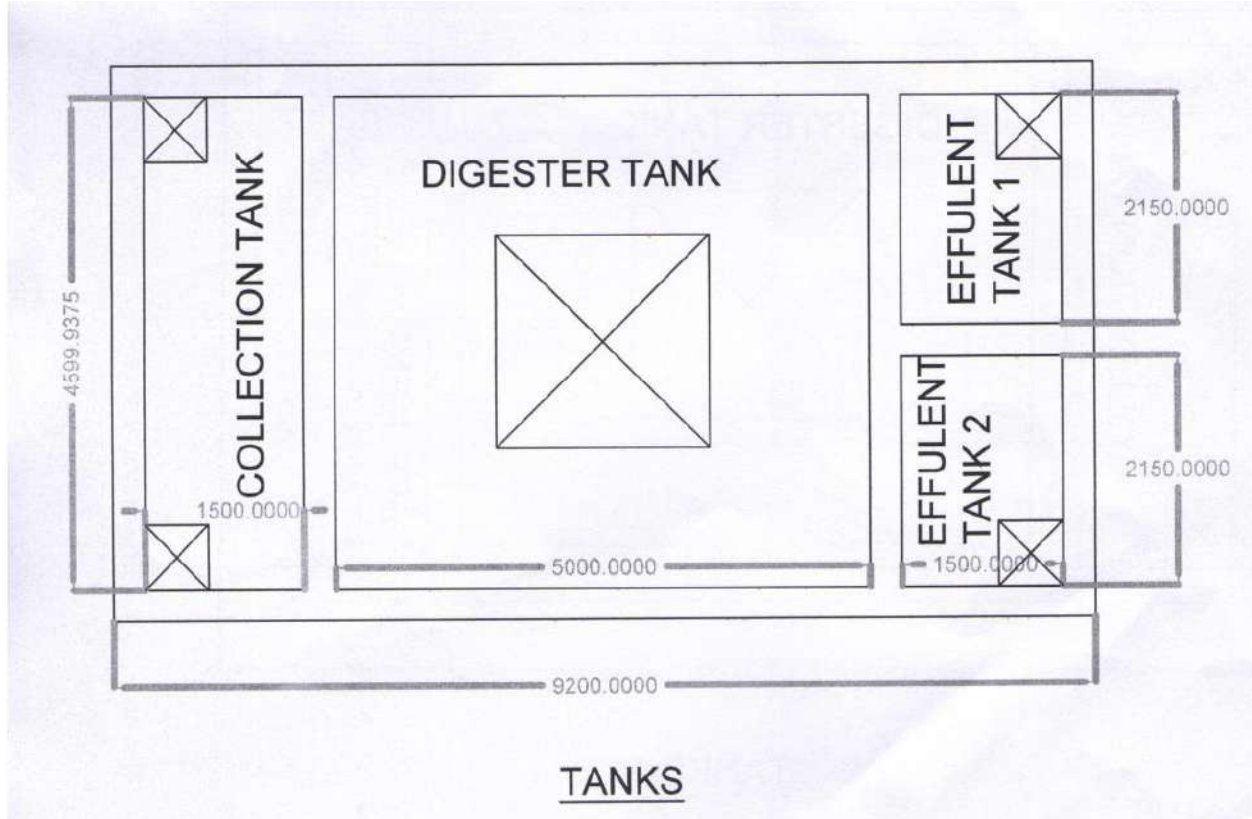


Organic Waste Converter



Shredding







# Vermicompost





Segregation of solid wastes at origin	Yes
How many dust bins are provided inside the campus	73 x 100 ltr., 456 x 50 ltr., 196 x 25 ltr., 993 x 5 ltr., 15 E-dust bins and 85 pedal dust bins altogether 1818 bins
Domestic solid waste management in practice	Yes
Plastic waste collection and appropriate management	Yes
Vermin compost	Yes
e-waste management practices	Yes, system in place
Biological / infectious waste management practices	Yes, system in place
Chemical waste management	Yes, system in place
Radioactive waste management	Yes, system in place

Reuse of waste	Yes
Waste minimization programs	Yes, plastic free campus
Inventory of waste generation (s)	Yes
Biogas plant	Yes, capacity with 500 kg/ day exist
E-waste disposal system	Handed over to authorized vendors

**Observations:** Radioactive wastes stored in separate containers kept at isolated identified places. Dust bins are widely provided in the campus for collection of segregated solid wastes at source. 73 x 100 ltr., 456 x 50 ltr., 196 x 25 ltr., 993 x 5 ltr., 15 E-dust bins and 85 pedal dust bins altogether 1818 bins are provided in the campus. Manure is prepared form solid wastes generated in the campus.

**Inferences:** E-waste management is practiced as per the applicable Rules and Regulations and handed over to authorized vendors. Segregation of solid waste at the place of origin is in practice.

**Further scope for improvement:** Training may be imparted to the local villagers on solid waste management through vermin compost.

A. 2. 2. 4 Energy management



Automatic lighting shut off	Yes, 10 nos. through timer 7.68 KW
Class of motor pumps	Four star
% of solar energy utilization	50 %
Energy performance index	21.59 KWH/m <sup>2</sup>
Star rating of DG sets	KTA-G9- Eco friendly
Energy management practices	Yes
Timers for street lights	Yes
IEC activities on energy management	Nil
Strategies adopted since 2020 to bring Energy Performance Index Ratio (EPI Ratio) less than or equal to 1 for following ECBC 2017	Nil

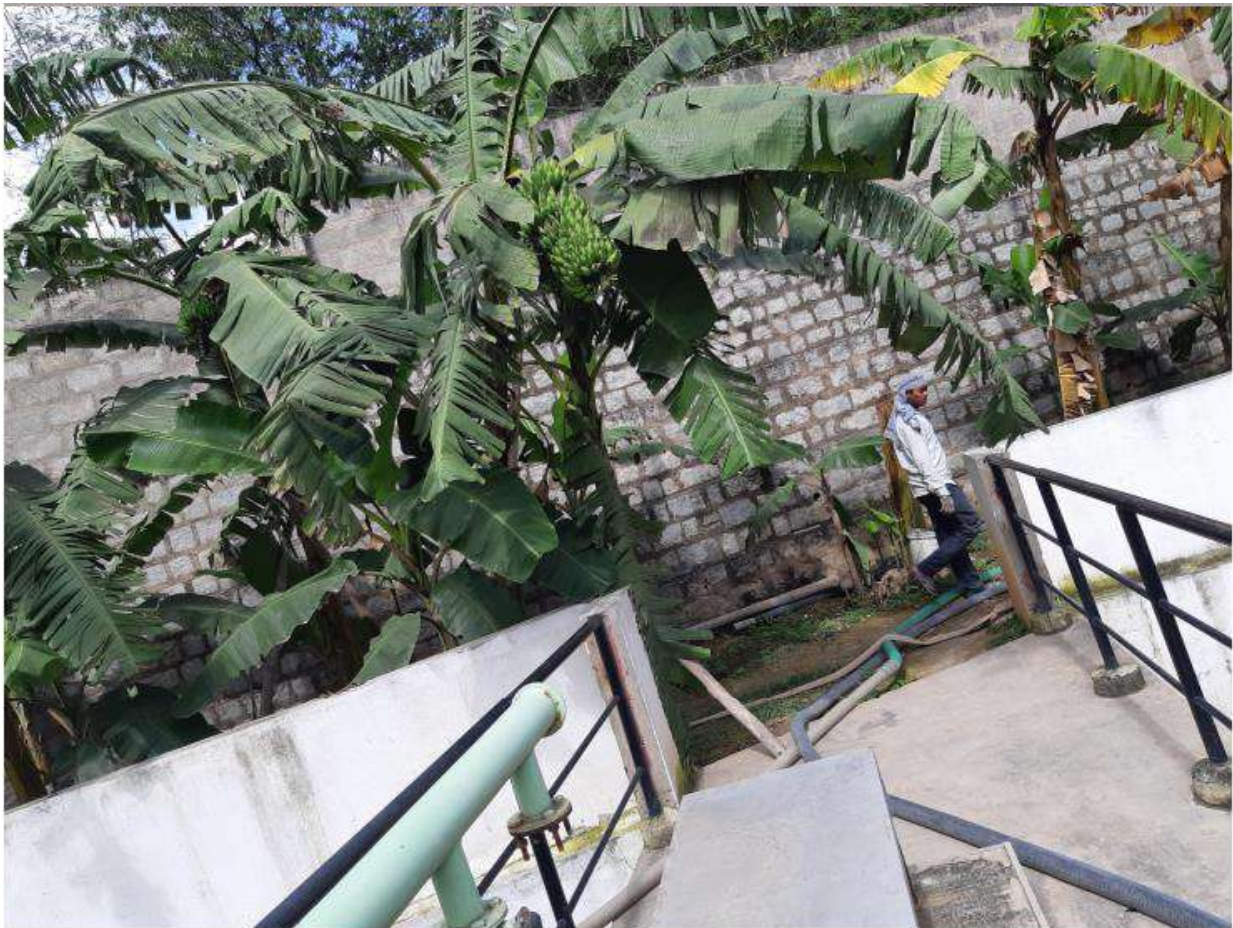
**Observations:** Automatic lighting shut off is provided with timers. IEC activities on energy management do not exist. 50 % energy consumption is managed through solar energy.

**Inferences:** Energy Performance Index is too high. DG sets and motor pumps are energy efficient.

**Further scope for improvement:** Strategies are to be adopted so that Energy Performance Index Ratio (EPI Ratio) is lowered to less than or equal to 1 for being in compliance with ECBC 2017.

A. 2. 2. 5 Landscape management







Green cover area with indigenous species	30 %, 13800 m <sup>2</sup>
Avenue tree plantations	Yes, throughout the campus
Medicinal plantations	Specific medicinal plantations exist
Exotic plants/ animals	Vivekananda, Admin & Science blocks have,

	that too meant for decorative or aesthetic purposes only. Other blocks don't have.
% of land area with constructions	30 %
Plants identified with labeling	Yes
Any unpaved roads inside the campus	Nil

**Observations:** Medicinal plantations specifically are planted. The campus is green and serene.

**Inferences:** The exotic species meant for aesthetic purpose and ornamental are not invasive.

**Further scope for improvement:** Inventory of medicinal plantations inside the campus may be made incorporating the uses of each species.

#### A. 2. 2. 6 Building management





Firefighting systems with valid certification	Yes
Conductance of mock drills	Yes
Maximum number of cellar floors	One
Minimum setback distance	12 meters
OSHAS 18001 certification	Yes
Eco friendliness	Yes
Serenity of classrooms	Yes
Provision for 'Divyang' friendliness	Except hostel, library and science blocks
First aid room/ sick room	Except Vivekananda block
Ergonomic furniture	Yes
Material safety data sheet maintained	Yes
Emergency exit in all buildings	Yes



Common assembly point markings	Yes
In case of emergencies, is any person designated to contact	Yes
Is there any book of procedures to be followed in case of emergencies	Yes

**Observations:** Mock drills regularly conducted. All the classrooms provided with ergonomic chairs. Chemical emergency preparedness documented and training imparted.

**Inferences:** MSDS documentation done. Chemical emergency preparedness is in place.

**Further scope for improvement:** All blocks may be made 'Divyang' friendly.

#### A. 2. 2. 7 Transportation management

% of employees using public conveyance	60 %
% of employees using vehicle pooling	3 %
Minimum width of internal roads	20 feet
Dust suppression mechanism along internal unpaved roads	Yes
In-house workshop for vehicles	Yes
Spillage management	Yes, centrally managed system exist
Management fleet maintenance wastes	Yes, centrally managed system exist
PUC certificate for all vehicles	Yes, all are current and valid.

**Observations:** Dust suppression is arranged through sprinklers. ~ 60% of the employees depend public conveyance.

**Inferences:** Percentage of employees adopting vehicle pooling is significantly less. All vehicles have valid certificate of Pollution Under Control.

**Further scope for improvement:** Employees may be motivated to use public conveyance or vehicle pooling as far as possible.

A. 2. 2. 8 Curriculum management





Environmental education in syllabi	Yes
Green clubs/ eco clubs	Yes
IEC activities on environment	Yes
Invited lectures on environment	Yes
Identification & labeling of biodiversity	Yes
Environment related day celebrations	Yes
Awareness on the drinking water quality of the campus among students & staff	Yes

**Observations:** Environmental education is included in syllabi. Internal green auditing is also conducted.

**Inferences:** IEC activities on environment make everyone inside the campus to be alert on keeping the campus clean.

**Further scope for improvement:** Displaying the drinking water quality at food court may be thought of.

A. 2. 2. 9 Emergency response procedures



Staff training on emergency response procedure	Yes
Documented emergency response procedure	Yes
Prompt display of emergency evacuation	Yes
Prompt display of emergency contact numbers	Yes
Laboratory waste management procedure	Yes
Incidences of radioactive material storage failure	Nil
Incidences of leachates from waste treatment plants	Nil



**Observations:** Emergency evacuation procedures are promptly displayed. Disaster management & Emergency Response System is updated to include Covid scenario also. Emergency contact numbers are promptly displayed.

**Inferences:** Emergency/ disaster potential areas are also identified and strategies developed to reduce vulnerabilities.

**Further scope for improvement:** Emergency response procedure may be reviewed periodically and refreshment programs conducted for which provision to be made in the response procedure specifying the periodicity of review and refresher trainings.

A. 2. 2.10 Transparency & response to enquiries / complaints

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### TEST REPORT

ULR-TC57831900002140 F

<p>Report No: R-2140</p> <p>Customer ID: 1612321/182</p> <p>Name of the Organization: Reva University</p> <p>Rukmani Knowledge Park, Yelahanka Post, Bangalore - 560064</p> <p>Sample Code: PU/2019/2140</p> <p>Nature of Sample: Borewell Water #</p> <p>Sample Description: Lakshmi Venkateshwara water</p> <p>Supply:KA-04 AC-1542e</p> <p>Sample collected from when retested: OK</p>	<p>Date of Sampling: 18.12.2019</p> <p>Date of Receipt: 18.12.2019</p> <p>Date of Analysis Started: 18.12.2019</p> <p>Date of Analysis Completed: 21.12.2019</p> <p>Date of Report: 24.12.2019</p> <p>Sample Drawn By: [Signature]</p> <p>Source of Collection: Borewell</p> <p>Sampling Container: Sterile Glass Bottle &amp; Polythene Bottle</p> <p>Environmental Condition: Ambient Temperature</p> <p>Sampling Method: IS:3025 part 1-1987 &amp; IS:1622-1981</p> <p>Sampling Quantity: 2 ltr.</p>
---	---

Sl. No	Parameters	Units	Protocol	Results	Standards IS: 10500:2012	
					Desirable Limits	Permissible Limits
1	pH Value @ 20° C	-	IS:3025 Part 11 - 1983	6.60	6.5 to 8.5	No Relaxation
2	Total Dissolved solids	mg/l	IS:3025 Part 16 - 1984	500.00	500	2000
3	Total Hardness	mg/l	IS:3025 Part 21 - 2009	200.00	200	600
4	Calcium, as Ca	mg/l	IS:3025 Part 40 - 1981	129.00	75	300
5	Magnesium, as Mg	mg/l	IS:3025 Part 46 - 1996	17.40	30	100
6	Alkalinity	mg/l	IS:3025 Part 23 - 1996	88.00	200	600
7	Chlorides, as Cl	mg/l	IS:3025 Part 32 - 1988	148.00	250	1000
8	Sulphates, as SO <sub>4</sub>	mg/l	IS:3025 Part 24 - 1986	20.60	200	400
9	Iron, as Fe	mg/l	IS:3025 Part 53 - 2003	0.30	0.3	No Relaxation
10	Fluorides, as F	mg/l	IS:3025 Part 60 - 2008	0.40	1.0	1.5
11	Nitrates, as NO <sub>3</sub>	mg/l	IS:3025 Part 34 - 1988	33.20	45	No Relaxation
12	Total Suspended Solids	mg/l	IS:3025 Part 17	ND	0.5	1.00
<b>Microbiological Parameters:</b>						
13	Coliforms Count	MPN/100ml	IS:1622-1981	<2	SND	SND
14	Escherichia coli	MPN/100ml	IS:1622-1981	<2	SND	SND

Note: SND - Shall Not be Detectable <2> indicates Not Detectable (BCL - Below Detectable Limit) in 100ml of sample.

Information provided by customer: [Signature]

MICROBIOLOGIST: [Signature]

Checked: [Signature]

Authorized Signatory: [Signature]

Munish Ahirud Technical Manager

Date of the report: [Date]

1 of 1

Note:

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**TEST REPORT**

LIR-TC57831900002063 F Report No. R- 2063 Customer ID : 1612321182 Name of the Organization Reva University Rakmini Knowledge Park, Yelahanka Post, Bangalore - 562064 Sample Code: PU00190-1993 Nature of Sample <b>Borewell Water #</b> Sample Description <b>Jeevan Borewell#2</b>	Date of Sampling 11.12.2019 Date of Receipt 11.12.2019 Date of Analysis Started 11.12.2019 Date of Analysis Completed 14.12.2019 Date of Report 17.12.2019 Sample Drawn By Lab Representative Source of Collection Tap Sampling Container Swite Glass Bottle & Polythene Bottle Environmental Condition Ambient Temperature Sampling Method IS 3025 part 1- 1987 & IS 1622-1981 Sampling Quantity 2 ltr
---	---

Sl. No	Parameters	Units	Protocol	Results	Standards IS : 10500:2012	
					Desirable Limits	Permissible Limits
1	pH Value @ 25° C	-	IS:3025 Part 11 - 1983	6.28	6.5 to 8.5	No Relaxation
2	Total Dissolved solids	mg/l	IS:3025 Part 16 - 1984	432.00	500	2000
3	Total Hardness	mg/l	IS:3025 Part 21- 2009	140.00	200	600
4	Calcium, as Ca	mg/l	IS:3025 Part 40 - 1991	43.20	75	200
5	Magnesium, as Mg	mg/l	IS:3025 Part 45 - 1999	7.80	30	100
6	Alkalinity	mg/l	IS:3025 Part 23- 1986	160.00	200	600
7	Chlorides, as Cl	mg/l	IS:3025 Part 32 - 1984	88.80	250	1000
8	Sulphates, as SO <sub>4</sub>	mg/l	IS:3025 Part 24 - 1986	21.80	200	400
9	Iron, as Fe	mg/l	IS:3025 Part 53 - 2003	0.10	0.3	No Relaxation
10	Fluorides, as F	mg/l	IS:3025 Part 60 - 2006	0.40	1.0	1.5
11	Nitrates, as NO <sub>3</sub>	mg/l	IS:3025 Part 34 - 1988	3.90	45	No Relaxation
12	Total Suspended Solids	mg/l	IS:3025 Part 17	BDL	0.5	1.00
<b>Microbiological Parameters</b>						
13	Coliforms Count	MPN/100ml	IS:1622-1981	<2	SND	SND
14	Escherichia coli	MPN/100ml	IS:1622-1981	<2	SND	SND

Note: SND - Shall Not be Detectable, <2- indicates Not Detected, BDL - Below detection limit, N/A - Not Applicable  
# Information provided by customer

*[Signature]*  
MICROBIOLOGIST

*[Signature]*  
CHEMIST

*[Signature]*  
AUTHORISED SIGNATORY  
Sangeetha Sathyan S S  
Quality Manager

End of the report

1 of 1

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# TEST REPORT

ULR-TC5783200000028 F PLIFRIR/010/00

Report No. R- 0028	Date of Sampling 02.01.2020
Customer ID 1612/321/182	Date of Receipt 02.01.2020
Name of the Organization: Reva University	Date of Analysis Started 02.01.2020
Rukmini Knowledge Park, Yelahanka Post, Bangalore - 560064	Date of Analysis Completed 04.01.2020
Sample Code PL2020/05-0028	Date of Report 08.01.2020
Nature of Sample Water #	Sample Drawn By Lab Representative
Sample Description - M K Water Supply, KA 51-4883 #	Source of Collection Borewell
	Sampling Container Sterile Glass Bottle & Polythene Bottle
Sample condition when received OK	Environmental Condition Ambient Temperature
	Sampling Method IS:3025 part 1, 1987 & IS:1622-1981
	Sampling Quantity 2 ltrs

Sl. No	Parameters	Units	Protocol	Results	Standards IS : 10500:2012	
					Desirable Limits	Permissible Limits
1	pH Value @ 25° C	-	IS:3025 Part 11 - 1983	6.00	6.5 to 8.5	No Relaxation
2	Total Dissolved solids	mg/l	IS:3025 Part 16 - 1984	448.00	500	2000
3	Total Hardness	mg/l	IS:3025 Part 21 - 2009	202.00	200	500
4	Calcium, as Ca	mg/l	IS:3025 Part 40 - 1991	61.70	75	200
5	Magnesium, as Mg	mg/l	IS:3025 Part 46 - 1998	17.60	30	100
6	Alkalinity	mg/l	IS:3025 Part 23 - 1986	160.00	200	500
7	Chlorides, as Cl	mg/l	IS:3025 Part 32 - 1986	102.60	250	1000
8	Sulphates, as SO <sub>4</sub>	mg/l	IS:3025 Part 24 - 1986	20.50	200	400
9	Iron, as Fe	mg/l	IS:3025 Part 53 - 2003	0.10	0.3	No Relaxation
10	Fluorides, as F	mg/l	IS:3025 Part 60 - 2008	0.20	1.0	1.5
11	Nitrates, as NO <sub>3</sub>	mg/l	IS:3025 Part 34 - 1986	6.88	45	No Relaxation
12	Total Suspended Solids	mg/l	IS:3025 Part 17	BOL	0.5	1.00
<b>Microbiological Parameters</b>						
13	Coliforms Count	MPN/100ml	IS:1622-1981	<2	SND	SND
14	Escherichia coli	MPN/100ml	IS:1622-1981	<2	SND	SND

Note: SND - Shall Not be Detectable <2- indicates Not Detected, BDL - Below detection limit, N/A - Not Applicable.  
# Information provided by customer

*[Signature]*  
LABORATORY

*[Signature]*  
CHEMIST

*[Signature]*  
AUTHORISED SIGNATORY  
Munawar Ahamed  
Technical Manager

End of the report

1 of 1

**Note:**

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# TEST REPORT

ULR-TC57832000000118 F		PL/FR/R01000	
Report No. R- 0118	Date of Sampling 21.01.2020	Customer ID 1612/S21/182	Date of Receipt 21.01.2020
Name of the Organization: Reva University	Date of Analysis Started 21.01.2020	Rukmini Knowledge Park, Yelahanka Post, Bangalore - 560064	Date of Analysis Completed 23.01.2020
Sample Code PU2020/S-0118	Date of Report 27.01.2020	Nature of Sample Water #	Sample Drawn By Lab Representative
Sample Description Y K Water Supply,KA - 03-AC - 2528 #	Source of Collection Tanker	Sample condition when received -OK	Sampling Container Sterile Glass Bottle & Polythene Bottle
	Environmental Condition Ambient Temperature		Sampling Method IS:3025 part 1- 1987 & IS:1622-1981
	Sampling Quantity 2 ltr		

Sl. No	Parameters	Units	Protocol	Results	Standards IS : 10500:2012	
					Desirable Limits	Permissible Limits
1	pH Value @ 20° C	—	IS:3025 Part 11 - 1983	6.65	6.5 to 8.5	No Relaxation
2	Total Dissolved solids	mg/l	IS:3025 Part 16 - 1984	437.00	500	2000
3	Total Hardness	mg/l	IS:3025 Part 21- 2008	96.00	200	600
4	Calcium , as Ca	mg/l	IS:3025 Part 40 - 1991	27.20	75	200
5	Magnesium, as Mg	mg/l	IS:3025 Part 46 - 1998	6.80	30	100
6	Alkalinity	mg/l	IS:3025 Part 23- 1986	136.00	200	600
7	Chlorides ,as Cl	mg/l	IS:3025 Part 32 - 1986	57.70	250	1000
8	Sulphates , as SO <sub>4</sub>	mg/l	IS:3025 Part 24 - 1986	33.20	200	400
9	Iron , as Fe	mg/l	IS:3025 Part 53 - 2003	0.15	0.3	No Relaxation
10	Fluorides, as F	mg/l	IS:3025 Part 60 - 2006	0.20	1.0	1.5
11	Nitrates, as NO <sub>3</sub>	mg/l	IS:3025 Part 34 - 1988	6.30	45	No Relaxation
12	Total Suspended Solids	mg/l	IS:3025 Part 17	BDL	0.5	1.00
<b>Microbiological Parameters</b>						
13	Coliforms Count	MPN/100ml	IS: 1622-1981	<2	SND	SND
14	Escherichia coli	MPN/100ml	IS: 1622-1981	<2	SND	SND

Note: -SND - Shall Not be Detectable, <2- indicates Not Detected, BDL- Below detection limit, N/A - Not Applicable  
# Information provided by customer

MICROBIOLOGIST

CHEMIST

AUTHORISED SIGNATORY  
Munawar Ahmed  
Technical Manager

End of the report

1 of 1

**Note:**

- The results listed refer only to the tested samples and applicable parameters. Endorsement of products is neither inferred nor implied.
- Samples will be destroyed 15 days after the date of receipt of sample, unless other wise specified. Food and microbiology samples will be discarded after analysis.
- This report is not to be reproduced wholly or in part, and cannot be used as evidence in a court of law or as any advertisement media without special permission in writing.
- The liabilities are restricted to the invoice amount only.
- \* Not covered within NABL scope.



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Website with environmental information	Yes
Specific guidelines for handling in-house environmental complaints	yes
Inventory of illness cases of employees	Yes
Trend observation on frequently observed diseases among the employees	Yes
Mosquito eradication programs	Yes
Awareness generation at staff quarters and hostels	Yes
Environmental newsletters	Yes
Root cause analysis of environmental concerns	Yes

**Observations:** Root cause analyses of environmental concerns are done so as to ensure further non-occurrence.

**Inferences:** Newsletters bear environmental topics. Mosquito eradication is regularly done. Health status of employees is put in surveillance.

**Further scope for improvement:** Students may be capacitated/ encouraged to educate the local villagers on the relevant provisions of regional, national and international environmental legislations as is understandable to laymen.

#### A. 2. 2. 11 Covid perspective

Corona positive cases reported among the employees (also %)	Nil
Corona positive cases reported among the students (also %)	Nil
Causalities reported, if any, due to Covid	Nil
SOP developed to contain Covid in the campus	Yes
Prompt display of nearby Covid hospitals or CCC	Yes
Prompt display of updated list of nearby available hospitals	Yes

Prompt display of contact numbers for ambulance services	Yes
Is any contact person or call centre identified for immediate assistance, in case suspected Covid symptomatic persons are identified	Yes
Provision for thermal scanning at the entry gate	Yes
Is sanitizer provided at: <ul style="list-style-type: none"> <li>1. Main entrance</li> <li>2. Reception</li> <li>3. Parking areas</li> <li>4. Entrance of each building</li> <li>5. Corridor</li> <li>6. Stair case</li> <li>7. Lift lobby</li> <li>8. Lift</li> <li>9. All rooms</li> <li>10. Washing rooms</li> <li>11. Meeting</li> </ul>	Yes
Is PPE provided to employees	Yes, provided to nursing staff & sanitizing personnel
Is there any mechanism to disinfect the surfaces with 10% sodium hypochlorite solution, if ever come in contact with a Covid patient	Yes
Do all the vehicles sanitized in between each trip	Yes
Personnel designated/ mechanism developed to monitor social distancing	Yes
Is there any modus operandi to be followed while disinfecting any building	Yes as per WHO/ MHA guidelines/ standards
Any mock drill conducted for managing event in case of an outbreak of Covid	Yes
Is there any system that mandate every employee to inform the management of their well being	Yes (Declaration form)
Is there any prompt display of Covid related helpline number of:	Yes

<ol style="list-style-type: none"> <li>1. MHA</li> <li>2. State Government</li> <li>3. District</li> <li>4. DM/ADM/SDM</li> <li>5. Police station</li> <li>6. CMO</li> <li>7. Covid hospital</li> </ol>	
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<p><b>Observations:</b> Development of Jeeva Setu (Medical ventilator) is appreciable.</p>
<p><b>Inferences:</b> Face shield propaganda was helpful to the community also.</p>
<p><b>Further scope for improvement:</b> Appropriate amendments may be made in the SOP considering the regulations issued by the MHA Government of India as well as the Government of Karnataka and the regulatory authorities of higher education like <math>\mu</math>GC, AICTE etc.</p>

### A. 2. 3 Approaches for selecting indicators for EPE (EPIs)

In order to decide on the strategies to be undertaken for selecting Environmental Performance Indicators (EPIs), the following approaches were considered and/or discussed.

#### A. 2. 3. 1 Cause and Effect approach

This is the system of developing indicators that address the fundamental or underlying cause of its significant environmental aspects. It may perform an analysis to identify such a cause and select indicators based on this analysis. For example, an organization may authenticate that its high emissions of particulate matter are due to inadequate and/or infrequent preventive maintenance. It would be expected that, as preventive maintenance is performed more adequately and more frequently, the organizations particulate emissions would decrease.

#### A.2.3.2 Risk based approach

In this approach, indicators for EPE are selected based on the consideration of the risk that the management think is associated with particular activities. For example, an organization concerned about the risks of serious environmental damage posed by their operations may use a probabilistic risk-based approach to identify which specific process is the most likely to cause an explosion or the release of contaminants to the environment.

#### A. 2. 3. 3 Human health risk-based approach

In such attempts, the organization concerned on the long-term health effects may identify a particular material as having the greatest risk of posing a significant threat to workers and/or

local inhabitants. For example, the quantity of such hazardous substance an employee is exposed to per day and its duration.

**A. 2. 3.4 Financial risk-based approach**

Here the audit entity may identify those elements related to its environmental performance with the most significant costs, and therefore, may choose to select anyone or many like: cost of material, quantity of material, cost of reclamation and reuse of the material from waste percentage of the material in a specified quantity of the waste etc. with regard to the organization's operations.

**A. 2. 3. 5 Environmental risk-based approach**

Here, an audit entity may be concerned about an environmental aspect which may threaten the environment or the competitiveness of the organization. For example, an organization's investment allocation in replacements to chlorofluorocarbons.

**A. 2. 3. 6 Life cycle approach**

In this way of approach, the organization may select its indicators considering the inputs and outputs associated with a particular product, and the significant environmental aspects and impacts at any stage of the products life cycle. For example, if an organization has identified that fuel efficiency of a product during use may be enhanced. Possible indicators for EPE can be the number of units of energy consumed during use of the product, and the number of changes in product design to increase fuel efficiency.

**A.2.3. 7 Regulatory or voluntary initiative approach**

Organizations may focus their selection of indicators on those areas for which they have identified regulatory or voluntary performance requirements. If regulatory, they need to report only the actual monitored quantities.

An organization contributing towards a voluntary initiative (for example sustainable social forestry, coalition for environmentally responsible economics, or even celebrating environment related national/ international events with some action components) for example, an organization required as a part of voluntary initiative to implement a specific program for the prevention of pollution, may wish to track the number of relevant activities undertaken by the organization over the course of a year.

**A. 3 MANAGEMENT PERFORMANCE INDICATORS**

**A. 3.1 Performance indicators related to management policies and programs**

Any new green initiative(s)	Yes. Jagruthi 2 <sup>nd</sup> phase on Global warming, REVA Vanamahotsava, adopting Government schools under the initiatives of Abhivrudhi, keeping plastic free campus,
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	installations of STP, Solar systems, rainwater harvesting, wind energy utilization, biogas plant, manure from wastes and battery operated golf cart.
Any programs on SDGs of United Nations	Yes. Skill development programs, IPR, Entrepreneurship, Design Thinking, Placement Training (EDTPT) programs, REVA Nest to support 'Start-up India' program, ABHIVRIDHI program of e-books, battery operated buggies, lot digitalization to reduce paper, Tab based examination etc.
Is there any established environmental mission/ vision for the campus	The environmental mission/ vision is an integrated part of the philosophy of REVA University management; and the steps taken by the University to have a Green Audit on its campus is a proof of evidence. Dedication of REVA University in maintaining cleaner environment; and the utmost care, importance and commitment that the REVA University realizes on environmental protection is more evidently proved beyond doubt by the way of assigning the job of green auditing process to a third party especially to a QCI/NABET 'A' Grade accredited EIA Consultant having further certifications of ISO 9001:2015 and MoEF &CC.
Do the university have extensive in-house IEC activities on environment management	Yes
Do the university have undertaken outdoor IEC activities on environment management	Yes
What are the resources that the university have in efficiently implementing the environmental policies and programs of the management	Manpower with competency and assigned responsibilities at various levels.
Whether specific roles and responsibilities are assigned for environmental management	Yes
Regular monitoring of environmental quality and/or surveillance programs	Yes
Achievement of targets and objectives	Yes

Successful incidences of pollution prevention	Yes
% of employees trained versus the % that needs to be trained	60:40
Established mechanism to make aware the new appointees / contract persons	Yes
Number of environment management suggestions submitted by employees	Five
Number of meetings conducted to review environment management	Five numbers since 2021
Results of employee surveys on their knowledge of the organization's environmental issues	Employees at different level & rank are well aware of the environment upkeep and roles and responsibilities of each and further the persons to be contacted in case of any environmental emergencies.
Policy guidelines framed	Yes. Green initiatives, e-waste management, chemical hazard waste management etc.

### A. 3. 2 Performance indicators related to regulatory compliance

Existence of mandatory arrangements for fighting Covid	Yes
Meeting any international standards while disinfecting buildings	Yes, WHO standards in addition to guidelines from MHA, Government of Karnataka, µGC, AICTE etc.
Providing PPE to its employees	Yes, provided to nursing staff & sanitizing personnel
SOP developed for containing Covid	Yes
Prompt display of Covid helpline numbers	Yes
Frequency of emergency drills	Quarterly
Frequency of review of operating procedures	Half yearly
Degree of preparedness for emergencies	Adequately made
Time to respond to environmental incidents	Immediate
Number and severity of violations of statutory environmental requirements	Scrupulously followed.

A. 3. 3 Financial performance correlated with environmental performance

Costs (operational & capital) associated with environment management	₹ 2,10,000 per month
Return on investment for environment management	Nil
Savings achieved through reductions in resource usage, prevention of pollution or waste recycling and/or reuse	<p>Yes. STP Treated water we are using for Gardening purpose and flashing of toilet.</p> <p>Collection of dry leaves from Garden area along with food waste used in Organic Waste Converter (OWC) machine for production of manure. The same is being used for Gardening purpose.</p> <p>solar power- ₹ 60 Lakh STP- ₹ 5.38 Lakh</p>
Sales revenue attributable to waste management	Nil
Annual CSR/CER target and achievement with success indicators	<p>YES</p> <p>Tech Mahindra Foundation – IMS</p>
R & D funds applied to projects with environmental significance	Nil
Environmental liabilities that can have a material impact on the financial status of the university	Nil
Programs aimed poor and disabled	Yes, Abhivrudhi program

A. 3. 4 Performance indicators related to community relations

Any program to motivate/ aid local inhabitants	Yes. Jagruthi 1 & 2
Corporate Social Responsibility programs undertaken	Yes
Public involvement ensured in any environmental programs	Yes
Number of external inquiries or comments or complaints on environmentally related matters	Nil

Media/ press reports on the environmental performance of the university	Yes
Resources made available to support community environmental programs	Yes
Local remediation activities undertaken (local cleanup/ recycled paper making etc.)	Yes
Awards or achievements	<b>Swachh ranking campus 6<sup>th</sup> place 2018,</b> <b>Green University award 2020 Clean and</b> <b>Smart campus award 3<sup>rd</sup> place 2020</b>

**Observations:** Programs aiming poor and disabled are launched. Getting awarded with Swachh ranking campus, Green University award and Smart campus award are specific achievements in the sector of environment protection.

**Inferences:** Environmental vision/mission are integral part of the University policies.

**Further scope for improvement:** R&D funds may be separately earmarked for projects with environmental significance at local/regional level.

## A. 4 OPERATIONAL PERFORMANCE INDICATORS

### A. 4. 1 Materials

Usage of processed, recycled or reusable materials	Used paper recycling, re-use of treated water, re-use of printer cartridge and making compost from bio-degradable waste
Packaging materials discarded or reused	Reused through scrap dealer
Auxiliary materials recycled or reused	Yes
Rejects of one process as raw material for another	Yes
Reuse of water	Yes
Toxic materials used	Not reported



A. 4. 2 Energy

Energy consumption per annum	April 2021 to March 2022 – 2503946 units
Renewable energy used per annum	1,87,8000 units
Non-renewable energy consumption per annum	1,11,926 units
Energy generated with by-products or process streams	No
Energy saved due to energy conservation programs	10 %
Proposal for continual improvement	Renewable energy through BESCOM amounts to ~ 75 %

A. 4. 3 Services supporting the institutions' operations

Supporting green initiatives	Yes, organic farming, vermin compost, biogas plant, biodiversity listing, solar & wind energy utilization.
Amount of hazardous cleaning agents supplied/ used by the concerned service providers	Not reported
Amount of toxic substances supplied/used by the concerned service providers	Not reported
Amount of recycled materials supplied/used by the concerned service providers	Not reported
Amount of used material substances put to reuse (may include reuse of one side paper also)by the concerned service providers	Used papers are recycled
Type of waste generated by contracted service providers	Normal domestic wastes only
Sustainable management of different type of wastes generated by service providers	Not reported

A. 4. 4 Physical facilities and equipment

Number of emergency events	Nil
Identified polluting activities	Nil

Calculated quantity of resource use	Optimal
% of vehicles in use with PUC certificates	Hundred
Trained manpower for disaster management especially in the wake of Covid	Yes

**Observations:** Trained manpower to contain Covid situations exist

**Inferences:** Organic farming vegetables produced inside the campus is fully utilized in the campus food court itself.

**Further scope for improvement:** May develop more vegetable gardens so that the food court becomes self sustainable for vegetable needs fully meeting from the campus.

## A. 5 ENVIRONMENTAL PERFORMANCE INDICATORS

### A. 5.1 Air

Concentration of SO <sub>2</sub> in ambient air	13.3 µg/m <sup>3</sup> (NAAQ limits 80 µg/m <sup>3</sup> )
Concentration of NO <sub>x</sub> in ambient air	19.6 µg/m <sup>3</sup> (NAAQ limits 80 µg/m <sup>3</sup> )
Concentration of PM <sub>10</sub> in ambient air	41.9 µg/m <sup>3</sup> (NAAQ limits 100 µg/m <sup>3</sup> )
Concentration of PM <sub>2.5</sub> in ambient air	18.1 µg/m <sup>3</sup> (NAAQ limits 60 µg/m <sup>3</sup> )
Concentration of Ammonia (NH <sub>3</sub> ) in ambient air	< 0.01 µg/m <sup>3</sup> (NAAQ limits 400 µg/m <sup>3</sup> )
Concentration of Benzene (C <sub>6</sub> H <sub>6</sub> ) in ambient air	< 0.01 µg/m <sup>3</sup> (NAAQ limits 05 µg/m <sup>3</sup> )
Concentration of Benzo (a) Pyrene in particulate phase in ambient air	< 0.01 ng/m <sup>3</sup> (NAAQ limits 01 ng/m <sup>3</sup> )
Concentration of Arsenic (as As) in ambient air	< 0.01 ng/m <sup>3</sup> (NAAQ limits 06 ng/m <sup>3</sup> )
Concentration of Nickel (as Ni) in ambient air	< 0.01 ng/m <sup>3</sup> (NAAQ limits 20 ng/m <sup>3</sup> )
Concentration of Lead (as Pb) in ambient air	< 0.01 µg/m <sup>3</sup> (NAAQ limits 1.0 µg/m <sup>3</sup> )
Concentration of Carbon monoxide (as CO) in ambient air	31 µg/m <sup>3</sup> (NAAQ limits 2000 µg/m <sup>3</sup> )

Concentration of Ozone (as O <sub>3</sub> ) in ambient air	5.8 µg/m <sup>3</sup> (NAAQ limits 100 µg/m <sup>3</sup> )
Frequency of photochemical smog events in the campus or near vicinity	Very rare
Odour measured at a distance of 10 m from each block (odour in the adjacent residential area is an indicator of its success in controlling air emissions)	No odor

**A. 5. 2 Water**

Potable quality of the surface water/ ground water as per IS 10500: 2012 standards	All tested parameters are within acceptable limits prescribed by IS standards for drinking water
Potable quality of water used for drinking purposes at canteen/ food courts etc.	All tested parameters are within acceptable limits prescribed by IS standards for drinking water
Change in ground water level	No decreasing or increasing trend
Quality of STP outlet sample meeting the standards prescribed for inland surface water discharge standards as per Schedule VI	Yes
Residual sodium carbonate content in treated water used for gardening/ irrigation	The RSC content is 0.3725 me/l. Acceptable, as it is less than one.
Turbidity measured in the upstream and downstream of the water body that receive/likely to receive used water discharges/runoffs from the campus	Within acceptable limits
Coliform content of water being put to use	Absent

**A. 5. 3 Land**

Soil quality meeting the requirements for agricultural practices	Yes
Area dedicated to landfill	Nil
Soil quality of the land near to STP	Satisfactory
Organic farming practiced or not	Yes
Protected area/ undisturbed areas within the campus	Nil

Marshy/ water logged areas inside the campus	Nil
Any National Park, Wild Life Sanctuary, Elephant/ Tiger Reserves	<ol style="list-style-type: none"> <li>1. Mahatma Gandhi Botanical Garden 6.3 Km-SW (Ranganna Bird Sanctuary)</li> <li>2. Byalkere Peacock Reserve 9.3 Km, W</li> <li>3. Bannerghatta National Park 36.0 Km, S</li> <li>4. Puttenahalli Bird Reserve = 6.0 Km, W</li> </ol>
Any Wild Life Corridors	Nothing within 10 km radius
Any Eco-sensitive Zones or Biosphere Reserves	Nothing within 10 km radius
Any Ramsar Wetlands	Nothing within 10 km radius

#### A. 5. 4 Flora

Number of varieties of crop species	More than 1500 identified
Air pollution tolerant species	Crops like Mangifera indica (Mango) and Artocarpus heterophyllus (Jackfruit)
Plants with dust absorbing leaves	Mangifera indica (Mango) and Artocarpus heterophyllus (Jackfruit)
Medicinal plants	Yes
Exotic species	Yes, only ornamental but not invasive
Red listed category items	Nil
lichens	Plenty

#### A. 5.5 Fauna

Migratory birds observed	Nil
Schedule I species observed	Nil
Domestic animals	As usual in domesticated villages
Rodents	Managed through pest control
Butterflies	Plenty
Crows	Plenty

A. 5.6 Humans

Regular occurrence of any specific disease(s) in the campus	Nil
COVID protocols are followed by everyone inside the campus or not including the visitors	Yes
Health check up data related to temperature checks of visitors is maintained or not	Yes
Is the campus Divyang friendly	Yes
Do the campus have facilities for special able persons	Yes

A. 5.7 Aesthetics, Heritage & Culture

Condition of sensitive structures	Strong
Condition of places considered sacred	Very good
Condition of vicinity of STP	Hygienic
Condition of solid waste management surrounding area	Environmentally sound
Any historical or heritage resources in the locality	Nil

**Observations:** Air quality and water quality meets the prescribed standards. Sufficient numbers of air pollution tolerant species are observed among the flora.

**Inferences:** Residual Sodium Carbonate of treated sewage water is less than one me/l, and hence is fully suitable for gardening/ irrigation.

**Further scope for improvement:** Instead of chemical pest control, applicability traditional environment friendly methods may be thought of.

## B. ON SITE AUDIT

### B.1 ENVIRONMENTAL QUALITY ASSESSMENT

#### B.1.1 Monitoring at site

Field monitoring was conducted on 18.07.2022 to assess the environmental quality of the campus. The following are the environmental attributes/ parameters monitored and analysed.

##### B.1.1.1 WATER

Sr. no	Parameter analysed	Unit	Sump water	RO Water-girl's mess	Bore well near STP	Domestic water	Drinking water Standards IS 10500:2012 (2nd Revision) mdt.1	
							Acceptable limit	Permissible limit in the absence of alternate sources
1	pH	--	7.09	7.01	7.13	7.15	6.5 – 8.5	No relaxation
2	Colour	Hazen	3	4	4	5	5	15
3	Taste	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	No relaxation
4	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	No relaxation
5	Conductivity	µS/cm	640	154	459	738	Not specified	Not specified
6	Turbidity	NTU	< 1	< 1.0	< 1.0	< 1.0	1.0	5.0
7	Total dissolved solids	mg/l	407.3	94.7	279.7	472.6	500	2000
8	Total hardness as CaCO <sub>3</sub>	mg/l	151.5	45.8	110.1	185.0	200	600
9	Total alkalinity as CaCO <sub>3</sub>	mg/l	65	15	17	120	200	600
10	Calcium as Ca	mg/l	43.34	14.03	36.07	52.1	75	200
11	Magnesium as Mg	mg/l	10.48	2.61	4.84	13.3	30	100
12	Residual free chlorine	mg/l	< 0.1	< 0.1	< 0.1	< 0.1	0.2	1.0
13	Total Boron as B	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	0.5	1.0

14	Chlorides as Cl	mg/l	113.6	33.1	106.5	112.9	250	1000
15	Sulphates as SO <sub>4</sub>	mg/l	68.5	8.6	56.9	74.9	200	400
16	Fluorides as F	mg/l	0.74	0.34	0.65	0.82	1.0	1.5
17	Nitrates as NO <sub>3</sub>	mg/l	26.77	6.452	2.003	12.45	45	No relaxation
18	Sodium as Na	mg/l	76.2	13.91	54.6	83.2	Not specified	Not specified
19	Potassium as K	mg/l	2.665	0.611	1.122	2.968	Not specified	Not specified
20	Phenolic compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.002
21	Cyanides as CN	mg/l	< 0.2	< 0.02	< 0.02	< 0.02	0.05	No relaxation
22	Anionic detergents as MBAS	mg/l	< 0.01	< 0.20	< 0.20	< 0.20	0.2	1.0
23	Mineral oil	mg/l	< 0.003	< 0.01	< 0.01	< 0.01	0.5	No relaxation
24	Cadmium as Cd	mg/l	< 0.01	< 0.003	< 0.003	< 0.003	0.003	No relaxation
25	Total arsenic as As	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	0.01	0.05
26	Copper as Cu	mg/l	< 0.01	0.01	< 0.01	< 0.01	0.05	1.5
27	Lead as Pb	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	0.01	No relaxation
28	Manganese as Mn	mg/l	< 0.01	< 0.01	0.17	0.13	0.1	0.3
29	Iron as Fe	mg/l	0.02	< 0.01	0.01	0.01	0.3	No relaxation
30	Total chromium as Cr <sup>6+</sup>	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	0.05	No relaxation
31	Selenium as Se	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	0.01	No relaxation
32	Zinc as Zn	mg/l	0.03	0.12	< 0.01	< 0.01	5.0	15.0
33	Aluminium as Al	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	0.03	0.2
34	Mercury as Hg	mg/l	< 0.001	< 0.001	< 0.001	< 0.001	0.001	No relaxation
35	Pesticides	mg/l	Absent	Absent	Absent	Absent	Absent	Absent
36	E.coli	MPN/10 0ml	Absent	Absent	Absent	Absent	Absent	Absent
37	Total coliform	MPN/10 0ml	Absent	Absent	Absent	Absent	Absent	Absent

**REMARKS:** All the water samples complies to the requirement of IS 10500:2012

B.1.1.2 WASTE WATER (STP affluent & effluent)

Sr.no	Parameters	Unit	STP inlet	STP outlet	Inland surface water discharge standards as per Schedule-VI
1	pH @ 25°C	---	6.69	7.27	5.5-9.0
2	Total suspended solids	mg/l	520	12.4	< 100
3	Oil & grease	mg/l	11.9	< 0.1	< 10
4	Total residual chlorine	mg/l	< 0.1	< 0.1	< 1.0
5	Ammonical nitrogen as N	mg/l	11.8	< 0.1	< 50
6	Total kjeldhal nitrogen as NH <sub>3</sub>	mg/l	38.6	< 0.1	< 100
7	Free ammonia as NH <sub>3</sub>	mg/l	3.86	< 0.1	< 5
8	Biological oxygen demand	mg/l	184	< 3.0	< 30
9	Chemical oxygen demand	mg/l	530	20	< 250
10	Arsenic as As	mg/l	< 0.01	< 0.01	< 2.0
11	Mercury as Hg	mg/l	< 0.001	< 0.001	< 0.01
12	Lead as Pb	mg/l	< 0.01	< 0.01	< 0.1
13	Cadmium as Cd	mg/l	< 0.01	< 0.01	< 2.0
14	Hexavalent chromium as Cr <sup>6+</sup>	mg/l	< 0.05	< 0.05	< 0.01
15	Total chromium as Cr	mg/l	< 0.01	< 0.01	< 2.0
16	Copper as Cu	mg/l	< 0.01	< 0.01	< 3.0
17	Zinc as Zn	mg/l	0.49	0.24	< 5.0
18	Selenium as Se	mg/l	< 0.01	< 0.01	< 0.05
19	Nickel as Ni	mg/l	< 0.01	< 0.01	< 3.0
20	Cyanides as CN	mg/l	< 0.02	< 0.02	< 0.2
21	Fluorides as F	mg/l	1.22	1.04	< 2.0
22	Dissolved phosphate as P	mg/l	0.72	0.31	< 5.0
23	Sulphide as S	mg/l	8.24	0.65	< 2.0
24	Phenolic compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	< 0.002	< 0.002	< 1.0
25	Manganese as Mn	mg/l	0.11	0.04	< 2.0



26	Iron as Fe	mg/l	0.16	0.06	< 3.0
27	Vanadium as V	mg/l	< 0.01	< 0.01	< 0.2
28	Nitrate nitrogen	mg/l	13.48	5.44	< 10
29	Residual sodium carbonate	me/l	1.065	0.3725	--

**REMARKS:** All parameters of the outlet sample is within stipulated limits.

#### B.1.1.3 Ambient air

Sr no	Parameter	Unit	Result	NAAQ limits
1.	Sulfur dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	13.3	80
2.	Nitrogen dioxide (NO <sub>x</sub> )	µg/m <sup>3</sup>	19.6	80
3.	Particulate matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	41.9	100
4.	Particulate matter (PM <sub>2.5</sub> )	µg/m <sup>3</sup>	18.1	60
5.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	< 0.01	400
6.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	< 0.01	05
7.	Benzo (a) Pyrene in particulate phase	ng/m <sup>3</sup>	< 0.01	01
8.	Arsenic as As	ng/m <sup>3</sup>	< 0.01	06
9.	Nickel as Ni	ng/m <sup>3</sup>	< 0.01	20
10.	Lead as Pb	µg/m <sup>3</sup>	< 0.01	1.0
11.	Carbon monoxide as CO	µg/m <sup>3</sup>	31	2000
12.	Ozone as O <sub>3</sub>	µg/m <sup>3</sup>	5.8	100

**REMARKS:** Ambient air quality meets the NAAQ standards prescribed by CPCB

B.1.1.4 AMBIENT NOISE

Sr. no	Location	Unit	Leq. Noise in d(B) A	
			Day (6 am to 10 pm)	Night (10 pm to 6 am)
1.	Near Swami Vivekananda block	d(B)A	40.3	33.7
2.	Near admin block	d(B)A	44.8	35.9
3.	Near C.V. Raman block	d(B)A	41.1	34.1
4.	Near Boy's hostel/Food court	d(B)A	43.7	36.0
5.	Near Visvesvarayya block	d(B)A	42.6	35.3
6.	Near Reva health centre	d(B)A	39.4	27.6
Ambient noise standards as per The Noise Pollution (Regulation and Control) Rules, 2000, S.O. 50 (E)			50	40

**REMARKS:** Ambient noise level is within the prescribed limits specified by CPCB for day and night timings.

B.1.1.5 Soil

Sr no	Parameter	Unit	Location		
			Near library	Near down slope of STP discharge point	Near down slope of solid waste management area
1.	Texture				
a.	Sand	%	49	46	51
b.	Silt	%	23	23	23
c.	Clay	%	28	31	26
2.	Textural class	--	Sandy clay	Sandy clay	Sandy clay
3.	Bulk density	gm/cc	1.42	1.36	1.38
4.	pH (1:5 aq. extraction)	--	5.98	6.24	3.48
5.	Conductivity (1:5 aq. extraction)	µs/cm	194	245	179
6.	Exchangeable calcium as Ca	mg/kg	2016	4762.7	1556.6

7.	Exchangeable Magnesium as Mg	mg/kg	525.6	907.2	354.5
8.	Exchangeable sodium as Na	mg/kg	267.8	253.4	327.5
9.	Sodium Absorption Ratio (SAR)	--	1.37	0.88	1.95
10.	Available nitrogen as N	Kg/h	86.9	100.4	96.8
11.	Available phosphorous as P	Kg/h	58.9	62.8	48.8
12.	Available potassium as K	Kg/h	164.8	188.9	154.8
13.	Organic Carbon	%	0.32	0.38	0.42
14.	Organic Matter	%	0.55	0.66	0.72
15.	Water soluble chlorides as Cl	mg/kg	110	85	146
16.	Water soluble sulfates as SO <sub>4</sub>	mg/kg	48	59	72
17.	Aluminum	%	6.55	3.73	5.60
18.	Total Iron	%	2.24	1.48	2.07
19.	Manganese	mg/kg	196.43	131.92	146.01
20.	Boron	mg/kg	< 0.1	< 0.1	< 0.1
21.	Zinc	mg/kg	21.85	29.15	23.23
22.	Total chromium as Cr	mg/kg	45.61	24.70	37.19
23.	Lead as Pb	mg/kg	21.36	12.13	16.84
24.	Nickel as Ni	mg/kg	22.69	11.36	16.70
25.	Arsenic as As	mg/kg	< 0.1	< 0.1	< 0.1
26.	Mercury as Hg	mg/kg	< 0.1	< 0.1	< 0.1
27.	Cadmium as Cd	mg/kg	< 0.1	< 0.1	< 0.1
28.	Exchangeable sodium	meq/100g	1.27	1.26	1.60
29.	Exchangeable potassium	meq/100g	0.65	0.75	0.62
30.	Exchangeable calcium	meq/100g	11.00	27.14	8.74
31.	Exchangeable magnesium	meq/100g	4.78	8.62	3.32
32.	Cation exchange capacity	meq/100g	17.71	37.76	14.27

**REMARKS:** The soil samples are not at all contaminated with any toxic substances and are suitable for agricultural purposes including gardening and vegetable growing.

## B.2. Review of background information

Background information was reviewed during the discussion meetings held on 21.06.2022 and 02.09.2022 and also during field monitoring held on 18.07.2022. further regular interactions were also maintained with the stakeholders.

## B.3. Assessing the ground realities

The same strategy as in reviewing background information was adopted for assessing ground realities.

## B.4. Field surveys and investigations

These were as per the nationally and internationally approved protocols. Instruments used in the testing of environmental parameters include LC-MS/MS, GC-MS/MS, GC-MS with purge and trap, Alpha counting system, Low background beta counting system, ICP OES etc.

# C. POST AUDIT

## C.1 Analyzing audit evidences

The audit evidences are analyzed under different angles so that every aspect may get counterchecked by another aspect by default. Different aspects finally bought up are:

- (i) Management performance
- (ii) Operational performance
- (iii) Environmental performance

## C.2 compilation and interpretation of data

indi cato	Item	Positive indications		Negative indications	
		Status	Marks assigned	Status	Marks assigned
<b>MANAGEMENT PERFORMANCE</b>	Vision & Mission	Integral part	+2	NA	NA
	IEC (indoor & outdoor)	Yes (indoor & outdoor)	+ 1.9	NA	NA
	Green initiatives	Yes	+ 2	NA	NA
	Assigning roles & responsibilities	Yes	+ 2	NA	NA
	Safeguarding occupational health & safety	Yes	+ 2	NA	NA
	COVID safeguards in campus	Yes	+ 2	NA	NA
	COVID safeguards for local community	Yes	+ 2	NA	NA
	Policy evolvement on environment	Yes	+ 2	NA	NA
	Emergency preparedness	Yes	+ 2	NA	NA
	Budget allocation for environment	Yes	+ 2	NA	NA
	Financial achievement in tune with physical	Yes	+ 2	NA	NA
	CSR/ CER	Yes	+ 2	NA	NA
	R&D for environment	Yes	+1.8	Rarely	– (0.5)
	Community environment programs	Yes	+ 2	NA	NA
Local remediation activities	Yes	+ 2	NA	NA	
<b>Sub-total for management performance</b>			<b>+ 29.7</b>		<b>– (0.5)</b>
<b>OPERATIONAL PERFORMANCE</b>	Practicing 3 R's (Reduce, Recycle & Reuse)	Yes	+ 2	NA	NA
	Greening the campus	Yes	+ 2	NA	NA
	Rejects of one process as raw material for another process	Yes	+ 2	NA	NA
	Reuse of water	Yes	+ 2	NA	NA
	Quality assessment of rainwater storage	No	+ 1.5	RWH storage exist, but no quality assessment	– (1.5)
	Energy conservation	yes	+ 2	NA	NA
	Solar energy utilization	Yes	+ 2	NA	NA
	Hygienic solid waste management area	Yes	+ 2	NA	NA
	Harmful noise generations	No	+ 2	NA	NA
	Biodiversity listing	Yes	+ 2	NA	NA
<b>Sub-total for operational performance</b>			<b>+ 19.5</b>		<b>– (1.5)</b>
<b>ENVIRONMENTAL PERFORMANCE</b>	Air quality meeting NAAQ standards	Yes	+ 2	NA	NA
	Drinking water meeting IS standards	Yes	+ 2	NA	NA
	Regular water quality checks	Yes	+ 2	NA	NA
	STP outlet discharge meeting standards prescribed	Yes	+ 2	NA	NA
	Monitoring indoor environment	Yes	+ 2	NA	NA
	Marshy/ waterlogged areas	No	+ 2	NA	NA
	Medicinal plantations	Yes	+ 2	NA	NA
	Presence of lichens	Yes	+ 2	NA	NA
	Hygienic surroundings of STP	Yes	+ 2	NA	NA
Presence of flies & rodents around SW unit	No	+ 2	NA	NA	
<b>Sub-total for environmental performance</b>			<b>+ 20</b>		<b>0</b>

AWARDS/ APPRECIATIONS/ INNOVATIONS	Environmental policy related	Yes. Green University award	+ 10	NA	NA
	Environmental operation related	Yes. Swachh ranking campus	+ 10	NA	NA
	Environmental performance related	Yes. Clean & Smart campus award	+ 10	NA	NA
Sub-total for awards/ appreciations			<b>+ 30</b>		<b>0</b>

## 3. CARBON FOOTPRINT

### INTRODUCTION to CF

Carbon footprint refers to the global warming potential of the greenhouse gases emitted directly or indirectly due to the functioning of an organization. Carbon footprint disclosure of an institution is a key indicator of the institution's commitment to environment as well as it is crucial in understanding / identifying the key elements of emissions and further to develop strategies of mitigation measures.

The climate change bill- 2012 focuses on the reduction of targeted GHG emissions in India. India is committed to reduce its emission intensity per unit GDP by 33 to 35 % below 2005 by 2030 under Paris agreement. This has compelled many sectors to come forward in assessing and voluntarily disclosing its carbon footprint and deciding on the targets.

In the case of an educational institution, there is an influential role in the society as well as over industrialists at local and national levels. Further, the educational institutions set ground for imparting responsible perspectives to the young minds who act as successful incubators for innovation wherein many of the sustainable initiatives may originate.

### METHODOLOGY

The methodology adopted for carbon footprint (CF) estimation has been designed in tune with the ISO 14064-1:2006 guidelines. The key steps followed in the determination of CF are as follows:

- Confirmation of Organizational boundary
- Determination of operational boundary
- Deciding on the reporting period
- Quantification of GHG emissions and removal
- Quantification of activities in the organization
- Accounting for GHG emissions and calculating gross carbon foot print
- GHG removals CDM initiatives accounting and validating net Carbon foot print
- Reporting the carbon footprint of the University

### ORGANISATIONAL BOUNDARY

REVA University campus has an extent of 40 acres of land (161874.4 m<sup>2</sup>) comprised in Sy. Nos. 222, 223, 224, 225, 226, 227, 228 and 132/2 of Kattigena Halli Village, Yelahanka Taluk, Bangalore Urban district of Karnataka State.

## OPERATIONAL BOUNDARY

REVA University is managed by Rukmini Educational Charitable Trust (RECT). RECT is a public Charitable Trust with the aim of promoting, establishing & conducting development activities in the fields of Arts, Commerce, Education, Engineering, Environmental Science, Management and Science & Technology, among others. In pursuit of meeting these aims, the Trust has set up the REVA Group of Educational Institutions comprising of REVA Institute of Technology & Management, REVA Institute of Science and Management, REVA Institute of Management Studies, REVA Institute of Education, REVA First Grade College, REVA Degree College (Evening), REVA Independent PU College at Kattigenahalli, Ganganagar and Sanjaynagar and the REVA University.

## REPORTING PERIOD

The emissions for the academic year 2021-22, that is from 1<sup>st</sup> April 2021 to 31<sup>st</sup> March 2022 is accounted for the CF calculations and reporting.

## GHG Protocol

Guidelines on the requirements of quantifying GHG emissions within organizations under Kyoto protocol is laid down by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) and are published in 2011. CF measure the greenhouse gas emissions that are directly or indirectly caused by an activity or are accumulated over the life stages of a product or service, expressed in carbon dioxide equivalents. As specified by the Intergovernmental Panel on Climate Change (IPCC), 18 greenhouse gases with different global warming potential exist. The United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol mention only Carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydro fluorocarbons (HFCs), Per Fluorocarbons (PFCs), and Sulfur hexafluoride (SF<sub>6</sub>) for the carbon accounting.

## LIMITATIONS OF DISCLOSURE

- ✓ The data used for calculation of carbon footprint is as provided by the institution, and is taken in confidence.
- ✓ In the absence of exact value of the refrigerant load on installed and functioning air conditioners, refrigerators, water coolers etc., the manufacturer recommended values for capacity and type of equipment are considered.
- ✓ The electricity units were taken from the actual meter bills and hence the same may be fully accurate.
- ✓ The fuel consumption has been taken from the account related bills, registers etc., and hence that may also be fully accurate.
- ✓ In case the data related to travel related information, either the fuel or mode of



transport etc., did not include the relevant information for few employees, students and/or guests/visitors/ contractors etc., the same might have been ignored.

- ✓ Any calibration error in the system while computation was made cannot be ruled out.
- ✓ The campus population and area:

Category	On campus	Off campus	Total
Teaching staff	53	647	700
Non-teaching staff	12	588	600
Research students	240		240
Family members		250	250
<i>Total</i>			1790
Campus area			182070 m <sup>2</sup>

#### STEPS INVOLVED

The steps involved in the determination of GHG emission related to each category are:

- i. Determine the energy consumption in each category, such as KWH of electric consumption and litres of Liquefied Petroleum Gas (LPG) consumption
- ii. Find the GHG emission factor for each category such as Kg CO<sub>2</sub> e/m<sup>3</sup>, tCO<sub>2</sub> e/kwh, Kg CO<sub>2</sub> e/km travelled
- iii. Work out the quantity of CO<sub>2</sub>e of each category by multiplying consumption with emission factor of each category.

#### EVALUATION OF DIRECT & INDIRECT EMISSIONS

The emissions generated by activities at the REVA University campus related to Scope 1 to 3 of the GHG protocol standard including the sources of data used for its calculation are described in below paragraphs:

#### SCOPE 1- DIRECT EMISSION

This covers direct emissions from fuel consumption of LPG used in the campus for various purposes of burning, fuel used for on-site & off-site transportation by car and institutional buses. The emission factor for LPG is 2.983 and for Diesel is 2.653 kg CO<sub>2</sub> per litre (Source: Emission factors from across the sector-tool extracted from <http://www.ghgprotocol.org/calculation-tools/alltools>).

## SCOPE 2- INDIRECT EMISSIONS

It covers indirect emission by generation and transmission of electricity. The emission factor for these is 0.85 kg CO<sub>2</sub> per kWh. (Source: CO<sub>2</sub> emission factor database, version 6, CEA (Government of India), [http://www.cea.nic.in/reports/planning/cdm\\_co2/cdm\\_co2.htm](http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm)).

## SCOPE 3- OTHER INDIRECT EMISSIONS

This category is actually optional that covers likely emissions as a consequence of the activities of the organization that may occur in remote locations neither owned nor controlled by the University. To decide as to, which emission source may be relevant or not, the following criterion is adopted:

- i. Relevant emissions with respect to the total emission of the organization
- ii. Role of the activity in the organization as a whole
- iii. Reliability of the available data
- iv. Significance concerned with interested third parties
- v. Emission reducing potential.

In this category, all the above five criteria are considered for arriving at conclusions. Emission factor for paper consumption, fuel used, waste recycling etc. are accounted only where it was found significant. (Source: Climate leadership, USEPA emission factors for greenhouse gas inventories 26 March 2020).

### Types of data collected and their sources

GHG accounting		Source of data	Units
Activity	Sub-activity		
Combustion (stationery sources)	LPG in canteen and laboratories	Records in registers	Kg of LPG/yr
	Diesel used in DGs	Log book	Litres of diesel/ yr
Combustion (Mobile sources)	Diesel used in college buses	Log books	Litres of diesel/yr
Fugitive emissions	Refrigerant used in refrigerators and air conditioners	Invoices/ equipment identifications	Kg of refrigerant/yr
Power purchased	Unit of electricity	Electricity bills	kWh/yr
Commuting (Employees)	Distance travelled/ mode of transport	On-campus survey	Distance travelled/yr
Commuting (Students)	Distance travelled/ mode of transport	On-campus survey	Distance travelled/yr
Paper consumption	Quantity of paper used (fresh & recycled)	Purchase details/ records	Kg of paper/yr
Compost	Quantity of garden waste generated	Data book	Kg waste/yr

## GREENHOUSE GAS REMOVAL

Here, the GHG factor removal includes an oxidation component. Nowadays, the carbon footprint estimations include the application of carbon sequestration by an urban green space. The carbon stored in trees varies with growth and mortality. In a greenbelt of maximum growth and low mortality, 226 tonnes of CO<sub>2</sub> per hectare; while in a greenbelt of minimum growth and high mortality, it may be 38 tonnes of CO<sub>2</sub> per hectare. (Source: Peri-urban land use relationships supported by European Union under the sixth framework program).

### SCOPE BASED CARBON FOOTPRINT

#### a. Direct emissions under Scope 1

It is estimated that an LPG cylinder usually weigh 19 kg and 2118 cylinders are used in the year.

$$\text{Input value of LPG} = 2118 \times 19 = 40242$$

$$\text{Output value of LPG} = 40242 \times 2,983 \text{ (emission factor)}$$

$$= 120041.886 \text{ kg of CO}_2$$

$$\text{Diesel for vehicles} = 98417 \text{ ltr}$$

$$\text{Diesel for generators} = 25650 \text{ ltr}$$

$$\begin{aligned} \text{Input value of diesel} &= 98417 + 25650 \\ &= 124067 \text{ ltr} \end{aligned}$$

$$\begin{aligned} \text{Output value of Diesel} &= 124067 \times 2.653 \text{ (emission factor)} \\ &= 329149.751 \text{ kg of CO}_2 \end{aligned}$$

$$\begin{aligned} \text{Total under Scope 1} &= 120041.886 + 329149.751 \\ &= 449191.637 \text{ kg of CO}_2 \end{aligned}$$

#### b. Indirect emissions under Scope 2

In India, one kWh of power is referred as one unit of electricity. The purchased electricity is 1878000 units.

$$\text{Input value of power} = 1878000 \text{ kWh}$$

$$\text{Output value of electricity} = 1878000 \times 0.85 \text{ (emission factor)}$$

$$= 1596300 \text{ kg CO}_2$$

c. Other emissions under Scope 3

This includes other indirect emissions that are considered relevant. 7500 kg of annual waste, 74997 kg of food wastes for composting etc., 46800 kg of manure and an average 20 tons (20000 kg) of paper recycling are considered relevant under scope 3.

Input value of general waste = 7500 kg

Input value of food waste = 74997 kg

Input value of manure from leaves etc. = 46800 kg

Input value of paper consumption average = 20000 kg

Total input for Scope 3 components = 149297 kg

Output value for scope 3 components = 149297 x 0.902 (emission factor)

= 134665.894 kg CO<sub>2</sub>

ACCOUNTING FOR CARBON FOOTPRINT

Scope 1 = 449191.637 kg of CO<sub>2</sub>

Scope 2 = 1596300 kg CO<sub>2</sub>

Scope 3 = 134665.894 kg CO<sub>2</sub>

Total = 2180157.531 kg CO<sub>2</sub>

= 2180.15 tCO<sub>2</sub>

GHG REMOVALS AND CDM INITIATIVES

Out of the total energy consumption requirement of 2503946 kWh for the entire campus, electricity purchased is 1878000 kWh which is accounted under Scope 2 source. Further, 1,98,9926 kWh is from solar energy trapping while 1,11,926 kWh is from wind power. This amounts to be 111926 x 0.85 (emission factor) = 95137.1 kg CO<sub>2</sub>. That means 95.1371 tCO<sub>2</sub>, comes as saving in carbon footprint.

The REVA campus has 1690 trees with big canopy. One mature tree or 4 to 5 small trees can make enough oxygen for one person. An average adult healthy person requires 11,000 litre of oxygen per day which may have about 550 litres of pure oxygen. Hence, 1690 trees may release 1690 x 550 = 9,29,500 litres of oxygen per year. One litre of oxygen weighs 1.14 kg, as such it amounts to 10,59,630 kg per year. Hence, 1059.630 tCO<sub>2</sub> comes as carbon sequestration by way of the greenbelt in the REVA campus.



## SIGNIFICANT BUT NOT ACCOUNTED

REVA University has undertaken the program of Vanamahotsava and caused planting of 15000 seedlings at various locations. At an average, 4 to 5 small trees make enough oxygen for one person. The seedlings planted are almost of minimum 2 ft height of healthy ones. For the sake of justifiable calculations, and considering that majority of the seedlings are now of 2 years age, let us say that 20 seedlings make enough oxygen for one person at the current scenario. Considering this,  $(15000 \div 10) \times 550 = 8,25,000$  litres of oxygen per year. One litre of oxygen weighing  $\sim 1.14$  kg, this amounts to 9,40,500 kg per year. Hence, 940.5 tCO<sub>2</sub> also comes as carbon sequestration by way of the Vanamahotsava program extensively conducted under the auspices of REVA. BUT, for the time being, this is not accounted as it has not grown for 10 years after which only the carbon footprint can be calculated from the actual survivals.

Ultimately, the carbon footprint removal is:

Wind power	: 95.1371 tCO <sub>2</sub>
Greenbelt	: 1059.630 tCO <sub>2</sub>
Total CF removal	: 1154.7671 tCO <sub>2</sub>

## RESULT &amp; REPORTING

Carbon footprint generated	: 2180.15 tCO <sub>2</sub>
Carbon footprint removal	: 1154.7671 tCO <sub>2</sub>
Net carbon footprint of REVA	: 1025.3829 tCO <sub>2</sub>

## AUDIT CONCLUSIONS

# Compliance audit conclusion

Goal 17 provides the means of implementation of other SDGs. Some of the targets under Goal 17 call for developed countries to assist developing and least developed countries through transfers of finance, technology, capacity building support, etc. Other targets pertain to strengthening the means of implementation within each country. We need to think of India's requirements and gaps in the means of implementation of the goals, by building upon the discussion of each of the other 16 goals.

### Finance

Target 17.1 talks of improving capacities for domestic tax and other revenue generation. India is notorious for its extremely complex tax regime. High tax rates, low tax base, high administrative costs of

taxation, and the sheer number of different taxes make the system inefficient. There is scope for reforms, and plenty of studies have been conducted to determine what reforms are needed. It is hoped that further studies will financially assess these reforms. The remaining targets under this section of goal 17 call for developed countries to assist developing countries through finance. India is not mandated to do so, although it provides financial assistance to some other countries. As a recipient of assistance, however, India must look to meet certain priorities. Poverty eradication is established as the top most priority of the post 2015 development agenda, ensuring that no one is left behind. Past experiences of India's development strategies

indicate that economic growth along with targeted policies for the poor can result in poverty reduction. Poverty eradication will require economic growth that invests in skills based training, vocational education and promotion of business opportunities. It shall have to generate income and employment based initiatives like setting up Small and Medium Enterprises (SMEs). Given the fact that most of the poor belong to the rural areas of the country and have large dependence on agriculture, India would be required to do public investments in agriculture. In parallel, understanding that cities are the nuclei of economic growth, it is equally important to develop infrastructure and facilities in the urban space. As demonstrated in this study, India faces a

substantial finance gap in achieving its SDGs. It is hoped that global finance to developing countries can fill at least part of this gap. As for India's contribution to global finance; India has been a large contributor to South-South Cooperation and shall play a key role in strengthening the financial stability of South Asia.

### Technology

Targets 17.6, 17.7 and 17.8 call for enhancing international cooperation in the development, transfer and dissemination of technologies to aid in the implementation of SDGs. India needs investments in technologies in almost all SDG related sectors. In particular, India must leverage technologies to enhance agricultural productivity, improve healthcare systems, reverse environmental degradation and enable sustainable production processes. With food security as a fundamental concern and food waste, one of the biggest challenges that developing countries like India face, technology for infrastructure and capacity requirements for preventing food loss is of high priority. The "Make in

India" campaign initiated by the current Indian government will require a significant amount of technology transfer. The need for sustainability even while expanding production capability requires technology. Goals 9 and 11 that focus on sustainable industrialisation and urban infrastructure respectively are in need of new technologies to ensure that these initiatives involve minimal carbon footprints. The section 'Finance for Research and Development' in this study estimates the finance required for research and development, including the development of new technologies for the effective achievement of other SDG goals and targets. The estimated finance required for research and development as well as gap in finance has been provided in a later section in this study. It is hoped that assistance from developed countries in the form of technology assistance can help close the gap. While India, being a developing country, is not mandated to provide such transfers to other countries, India is one of the four largest contributors, in terms of resource flows, in South-South Cooperation. To

date, India is estimated to have provided over USD 3 billion of technical assistance to 156 developing countries<sup>33</sup>. Grants that India provides are mostly for rural development, education, health, technical co-operation and loans for infrastructure.

### Capacity Building

Target 17.9 calls for targeted capacity building at all levels to strengthen the ability of public institutions to implement the SDGs. Some of the finances required to achieve this target have already been estimated under other goals. For example, the cost of building capacities of ULBs to administer urban services has been accounted for under Goal 11. The cost of engaging local institutions such as panchayats in the provision of drinking water and sanitation has been considered under Goal 6. The cost of awareness generation on various aspects of sustainable development has to be considered separately.

### Trade

Trade plays a decisive role in carving the economic growth of the country. Targets 17.10, 17.11 and

17.12 call for equitable multilateral trading systems, increased exports from developing countries and duty-free, quota-free market access for all. These targets are not directly quantifiable in financial terms.

**Systemic issues**

Targets 17.13 to 17.19 refer to addressing systemic issues that may hinder the achievement of SDGs in many countries. India needs to work substantially on improving policy and institutional coherence with SDGs. Further, India would need to develop monitoring and evaluation mechanisms in order to complement growth and development measures such as GDP growth with new indicators for

sustainability. Some of these costs have been estimated elsewhere in the study. For example, the estimation of requirements and gaps in climate finance considers the cost of integrating climate concerns in planning processes. However, any additional investments that may be needed in other sectors need also to be assessed.

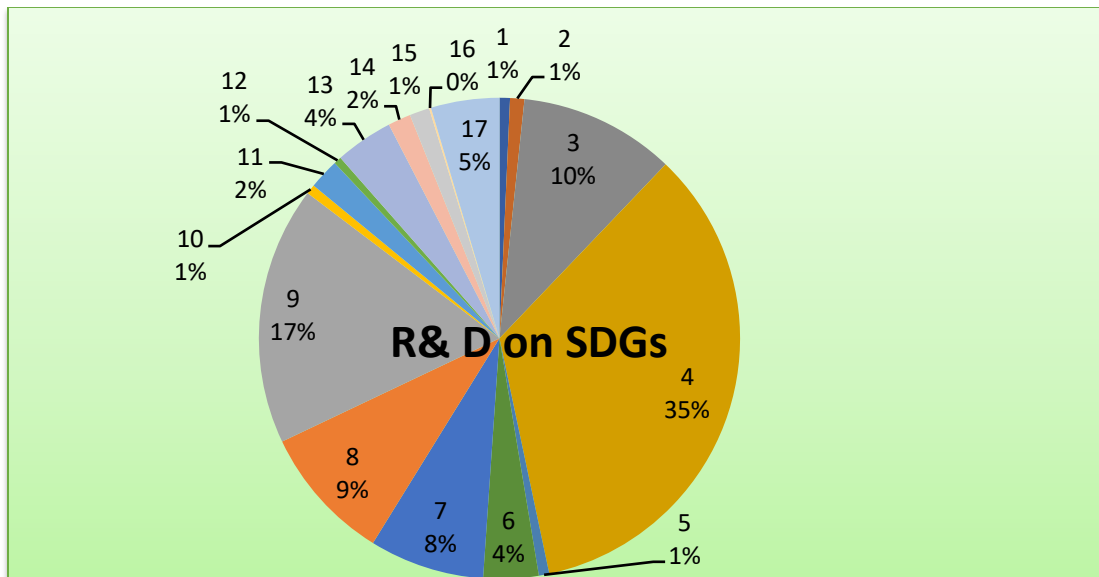
**R & D Activities**

While R&D funding is not the sole indicator of how a nation, region or industry or a University will perform, it certainly is a fundamental consideration among other factors like science, technology, engineering and mathematics, education levels, capital markets, healthcare,

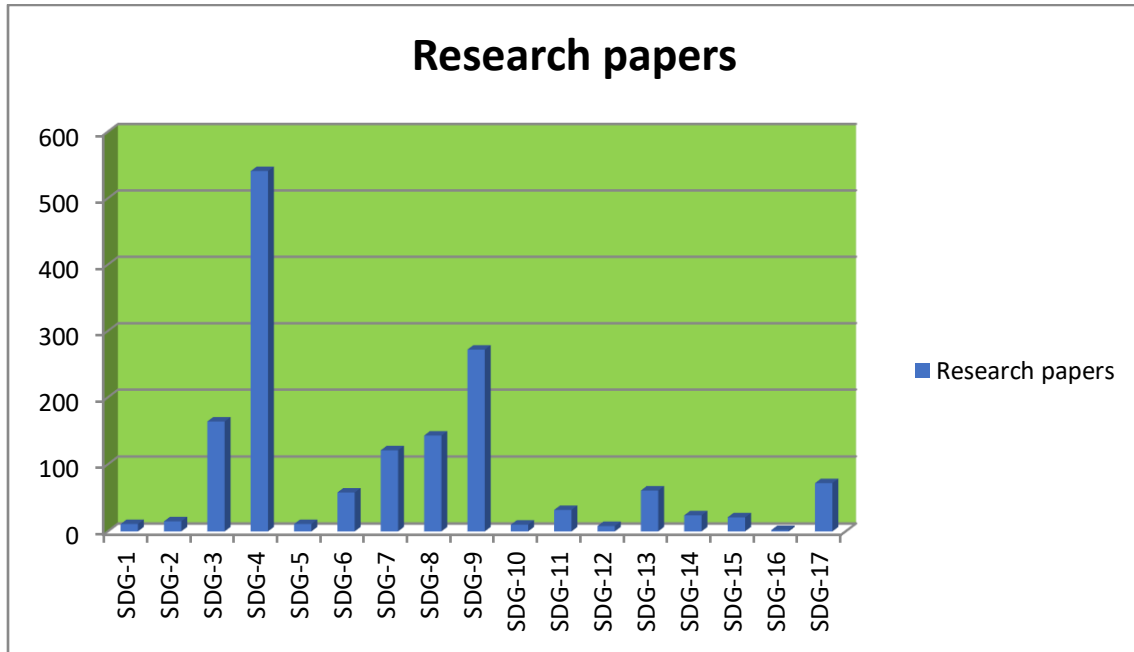
infrastructure, property rights and immigration policy.

In the case of REVA University, the R&D under different SDG's are as tabulated below:

SDGs	No. of Research papers
1 Poverty	11
2 Hunger	15
3 Health	164
4 Education	541
5 Gender Equality	11
6 Water	58
7 Energy	121
8 Economy	143
9 Infrastructure	272
10 Inequalities	10
11 Habitation	32
12 Consumptions	8
13 Climate	61
14 Aquatic life	24
15 Terrestrial environment	21
16 Institutions	2
17 Partnership and Goals	72










From the above, it is seen that the R&D **priorities** were for SDGs 4 >9>3>8>7; **reasonable** were 17>13>6>11>14>15 while **least importance** were 2>1>5>10>12>16 wherein the SDG-16 had only 2 R&D papers. It is to be noted that the REVA University have covered all SDGs under R&D. Some of the SDG targets specifically call for ensuring that people have relevant information, awareness and skills needed to promote sustainable development. Besides

these targets, there are also other targets for which awareness generation is a necessity. For example, citizens need to be aware of what to do in the event of natural disasters to ensure disaster preparedness of the country. At the core of all tasks undertaken for sustainable development, it is of utmost importance to enable people to understand the importance of the environment and make concerted efforts to use resources sustainably. The

jagruthi program undertaken by the University is appreciable including the Vanamahotsava. There is no record of much awareness activities either for the students or the public at large aiming towards the SDGs. REVA provides financial assistance by way of scholarships and fee concessions to students facing poverty. Abhivrudhi-education on wheels is admirable outreach program on education.





 <b>End poverty in all its forms everywhere</b>			
Activity	Status	Positive indication	Negative indication
Research on poverty related topics	Yes - 11	+2	
Financial aid to students facing poverty	Yes-Scholarship, fee concession,	+2	
Policy target to admit students facing poverty	No		-2
Anti-poverty student programs	No		-2
Antipoverty community programs	Yes - Abhivrudhi	+2	
Programs to address decent dress/cloth to students/ staff	Yes – Included in code of conduct	+2	
Ensuring fair trade and/or ethical supply chains	Yes – call for quotations and lowest quote keeping in view the quality considerations, the vendor is approved	+2	
Purchase from local markets/ direct from agricultural fields	Yes	+2	
Investment policies promoting ESG (Env. Social & Governance) principles	Yes, Green Audit every year	+2	
Sub-total for SDG-1		+14 (77.7 %)	-4
 <b>End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b>			
Research related to hunger	Yes - 15	+2	
Campus food waste	Yes, minimize by messages to students , control over production, OWC in place	+2	
Measures to reduce food waste	Yes, control over food production by Space basic app, STP and Bio Gas plant for recycling waste in place	+2	
Program to address student & staff food insecurity	Yes, food committee meetings are regularly held	+1	-1
Sustainable, nutritious and affordable food choices in campus	Yes	+2	
Courses in food sustainability	Yes, Eg: Organic Farming, Food Science and nutrition, Health and Hygiene	+2	
Facilitating food production in campus	Yes , Organic farming-small scale	+2	
Offering fresh food markets in campus	Yes, being set up	+2	
Events of technology transfer to farmers	No		-2
Events of skill attainment from farmers	No		-2
Any permanent system for the interaction of farmers and food producers	No		-2
Sub-total for SDG-2		+15 (68.2 %)	-7
 <b>Ensure healthy lives and promote well-being for all at all ages</b>			
Research related to health and well being	Yes - 164	+2	
Health habits in campus like cycling/ yoga	Yes, Yoga classes and Zumba classes for Hostel students	+2	






Health facilities in campus like gym, indoor stadium, outdoor play grounds with floodlights, music rooms, performance theatres	Yes	+2	
Sexual & reproductive health care facilities	Yes, REVA Health centre	+2	
Students & staff programs for improving physical health	Yes, yoga classes, health check up, medical camps	+2	
Students & staff programs for improving mental health	Yes- interaction with Counselor is encouraged	+2	
Students & staff programs for improving emotional health	Yes, Counselor available all the days	+2	
Students & staff programs for improving spiritual health	Yes, discourses by Swami Sukbodananda and other sessions	+2	
Students & staff programs for improving cultural health	Yes, Revotsava , Snehasammelana and other platforms	+2	
Community outreach programs for health and well being	Yes – Face shield, Ideathon, Jeevasethu, blood donation camps	+2	
Means to ensure appropriate practices in place for dealing with hazardous substances	Yes	+2	
Sub-total for SDG-3		+22 (100 %)	
 <b>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</b>			
Research related to elementary education	Yes - 541	+2	
Research related to adult learning's	Yes	+2	
Research related to early dropouts due to families and parental behaviour	Yes, planning for Skill Enhancement Programs for dropouts	+2	
Research related to early dropouts due to exposure to toxins /fear of insecurity/ harassments	Yes, monitored by Anti-sexual harassment cell and anti-ragging cell	+2	
Research related to early dropouts due to food insecurity	No		-2
Research related to early dropouts due to reasons of parent employment	Yes	+2	
Research related to early dropouts due to health issues	Yes	+2	
Research related to early dropouts due to child care needs	Yes	+2	
Policy to provide access and full participation in the university to vulnerable, disadvantaged people	Yes	+2	
Policy to provide access and full participation in the university to indigenous and people experiencing financial difficulty	Yes	+2	
Access to educational resources for non-students	Yes –Education on Wheels	+2	
Specific lectures or courses for the community	Yes	+2	
Vocational trainings for non-students	Yes	+2	
Policy to ensure that these activities are open to all, regardless of ethnicity, religion, disability, immigration status or gender	Yes	+2	



Policy of inclusive education, is it adopted or not	Yes	+2	
Sub-total for SDG-4		+28 (93.3 %)	-2
 <b>Achieve gender equality and empower all women and girls</b>			
Research related to gender equality	Yes - 11	+2	
Policy to ensure gender equity at workplace	Yes – Equal opportunity in employment/ labor contract etc.	+2	
Chances for women in university leadership positions	Yes – Present Controller of Examinations and Pro VC are women. Many Heads of Department are women.	+2	
Chances for women in senior academic roles	Yes- As above.	+2	
Policy to ensure pay equity irrespective of gender	Yes- Pay with respect to position and not with respect to gender.	+2	
Childcare in campus	Yes, Creche with all facilities available	+2	
Workplace flexibility for women	Yes	+2	
Participation in national campaigns for preventing women atrocities	Yes, routed through Unnathi, Women Forum, Women Grievance and Redressal Cell	+2	
Commitment & system for reporting sexual assaults taken place in the campus	Yes, Anti Sexual Harassment Cell, Women Grievance and Redressal Cell	+2	
Maternity and paternity policies	Yes, Maternity leave for 6 months and Paternity for 5 days	+2	
Policy protecting those reporting discrimination	Yes, Women Grievance and Redressal Cell, Student Redressal Cell	+2	
Transgender policy	Yes	+2	
Sub-total for SDG-5		+24 (100 %)	
 <b>Ensure availability and sustainable management of water and sanitation for all</b>			
Research related to water and sanitation	Yes - 58	+2	
Free drinking water for students, staff and visitors	Yes	+2	
Developing management and guardianship plans for on-campus waterways	Yes	+2	
Developing management and guardianship plans for surrounding waterways	Yes, Jagruthi initiative	+2	
Developing management and guardianship plans for on-campus biodiversity and ecosystem	Yes, Eco club, Green audit	+2	
Fully operational drainage system with appropriate drainage trap is available or not	Yes	+2	
Reuse of treated water	Yes , for watering of plants and lawns	+2	
RWH- storage and use	Yes	+2	
Any program for net zero discharge	Yes, rain water	+2	





campus	harvesting pits in place		
Sub-total for SDG-6		18 (100 %)	
 Ensure access to affordable, reliable, sustainable and modern energy for all			
Research related to affordable and clean energy	Yes - 121	+2	
% usage of solar energy for power requirements	50 %	+2	
Policy on compliance of ECBC for new buildings	Yes	+2	
Plans to reduce carbon emissions	Yes	+2	
Assistance for start-ups that foster and support a low-carbon economy or technology	Yes, REVA UIIC	+2	
Sub-total for SDG-7		+10 (100 %)	
 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all			
Research related to economic growth and employment	Yes - 143	+2	
Proportion of students getting work placements	Yes, 60%	+2	
Providing appropriately positioned and supported scholarship and financial assistance schemes for students in need	Yes	+2	
Supporting creativity and innovation through a culture of acceptable risk-taking, providing the appropriate space and process for ideas to flourish	Yes, REVA Incubation Centre through REVA UIIC	+2	
Monitoring employment outcomes and academic workload management	Yes	+2	
Implementing socially and environmentally responsible procurement policies and procedures, affecting up and down of the supply chain	Yes	+2	
Critically examining the role of economic growth	Yes	+2	
Issuing only green bonds where bonds are required	No		-2
Sub-total for SDG-8		+14 (87.5 %)	-2
 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation			
Research on industry, innovations and infrastructure	Yes - 272	+2	
Testing and piloting innovative solutions to improving operations inside the campus	Yes- Sewage block removal robot	+2	
Policy on commitment of building sustainable and resilient infrastructure that supports wellbeing and minimizes environmental impact	Yes, Eco-friendly campus, Solar powered Administrative block	+2	
Policy for ensuring retrofits of existing buildings to increase resource efficiency and adopt clean and environmentally sound technologies	Yes, as mentioned above	+2	
Committing to sustainable and reliable ICT (Information and communications technology) processes and services	Yes	+2	
Number of patents from any source that cite research conducted by the university	Yes, published (REVA IPR cell)	+2	
University spin-offs that are defined as registered companies set up to exploit intellectual property that has originated	No		-2



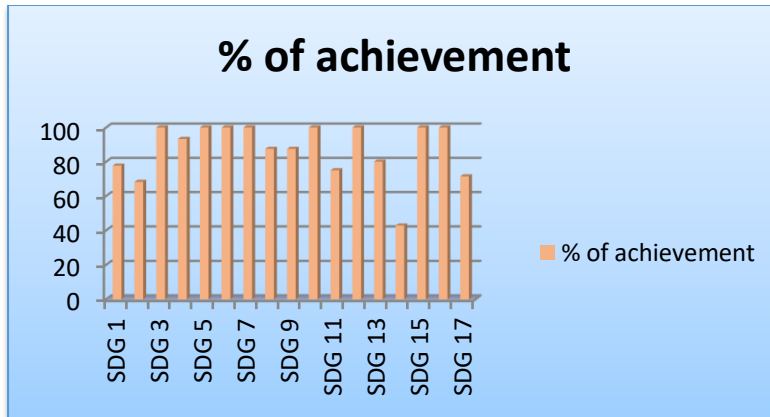
from within the institution			
Ability of the university to generate new research income from industry and commerce.	Yes, Industry sponsored research	+2	
Sub-total for SDG-9		+14 (87.5 %)	-2
<b>Reduce inequality within and among countries</b>			
Research related to inequalities	Yes - 10	+2	
Students from developing countries	Yes	+2	
Measures against discrimination	Yes, Anti Ragging policy in place , Helpline Nos posted in the campus for safety of students	+2	
Mentoring, counseling or peer support programmes aimed at students and staff from under-represented groups	Yes, strong mentoring system and Counseling	+2	
Accessible facilities for people with disabilities	Yes, wheel chair, ramps, etc	+2	
Accommodation policy or strategy for people with disabilities, including adequate funding	Yes	+2	
Policy for managing the pay gap between the highest and lowest paid staff	Yes, normalization of Salary by HR Dept	+2	
Providing a supportive, inclusive and safe working and learning environment for people from financially and socially disadvantaged, different backgrounds, people from rural and regional areas, people with disabilities, women in the workplace, people of diverse genders and sexualities and people from diverse culture, faith, communities, religion, caste, creed etc.	Yes	+2	
Sub-total for SDG-10		+16 (100 %)	
<b>Make cities and human settlements inclusive, safe, resilient and sustainable</b>			
Research related to sustainable cities to keep up the tradition of/and communities	Yes - 32	+2	
Public access to university libraries	Yes , monitored by Security	+2	
Public access to open and green spaces of the university	Yes , monitored by Security	+2	
Public access to artistic events or concerts	Yes , monitored by Security	+2	
Recording and preserving of local heritage	Yes	+2	
Work with local authorities to address planning issues, including the provision of affordable housing for local residents	No		-2
Providing safe and affordable on-campus housing for students and staff	Yes , hostel, staff quarters	+2	
Implementing best practice pollution control and waste management processes and policies	Yes – Biogas, Vermin compost, Organic waste converter, STP etc.	+2	
Provision of sustainable transport system including public transport and bike paths	No		-2
Sub-total for SDG-11		+14 (75 %)	-4

<b>Ensure sustainable consumption and production patterns</b>			
Research on responsible consumption and production	Yes - 8	+2	
Policy to reduce food wastes	Yes	+2	
Policy on use of plastic items	Yes	+2	
Policy on use of disposable items	Yes	+2	
Evidence to prove that all the above policies (plastic/ disposable) apply to outsourced suppliers	Yes, recycling of waste (food, papers etc)	+2	
Incorporating sustainability and ethical considerations into purchasing policies, procedures and activities	Yes	+2	
Publication of university sustainability report (stand-alone)	Yes, Green audit report	+2	
Sub-total for SDG-12		+14 (100 %)	
<b>Take urgent action to combat climate change and its impacts</b>			
Research on climate change related topics	Yes - 61	+2	
% of low carbon energy use	Yes	+2	
Promoting increased use of sustainable transport	Yes	+2	
Courses on climate change	Yes, Environment Science, Organic Farming etc	+2	
Community based education/ aware programs on climate change	Yes- Vanamahotsava, Jagruthi	+2	
Action plans to address climate change disasters	Yes	+2	
NGO collaboration on climate change adaptation	No		-2
Any expo conducted on sustainable food service habits reducing carbon emissions	No		-2
Any newsletter publication on climate change/ action	Yes, Green audit report	+2	
Commitments for carbon neutral University	Yes	+2	
Sub-total for SDG-13		16 (80 %)	-4
<b>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</b>			
Research related to aquatic ecosystems including ocean science	Yes - 24	+2	
Community education programs for freshwater water body conservations	Yes, Jagruthi	+2	
Community education programs for coastal area management	No		-2
Outreach programs on over, uncontrolled and destructive fishing	No		-2
Event support on aquatic ecosystem management	Yes, Jagruthi	+2	
Work on technologies or practices to help marine industry prevent damage to aquatic ecosystem	No		-2
Community interventions to maintain shares aquatic ecosystems	No		-2
Sub-total for SDG-14		+6 (42.8 %)	-8
<b>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</b>			
Research on terrestrial ecosystems	Yes - 21	+2	



Organizing events aimed for conservation and sustainable land use	Yes, Jagruthi, Vanamahotsava	+2	
Policy to ensure conservation, restoration and sustainable use of land ecosystems associated with the university	Yes, Swachh campus, Smart & Clean campus	+2	
Inclusion of local biodiversity in planning and developmental processes	Yes Biodiversity labeling, medicinal plantations	+2	
Any policy on the introduction of alien species inside the campus	Yes/ No	+2	
Sub-total for SDG-15		+ 10 (100 %)	
 <b>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</b>			
Research on peace & justice	Yes - 2	+2	
Publishing university policies on organized crime, corruption and bribery	Yes	+2	
Developing policies, procedures and plans to ensure that the campus is safe for all staff, students and visitors	Yes, security , CCTV, and Ambulance in place	+2	
Ensuring that procurement policies and procedures clearly indicate an intolerance to working with any companies known or found to be involved in exploitation of people	Yes	+2	
Ensuring that investment policies preclude investment in industry that deals in arms, human trafficking and/or modern slavery	Yes	+2	
Ensuring that the policies and culture of the institution clearly indicate that bribery, corruption, violence, crime and acts of terrorism is unacceptable	Yes	+2	
Organizing cross-cultural activities in campus	Yes, NSS, NCC	+2	
Ensuring that all staff and students have access to justice and information about their rights	Yes, Through Legal studies School	+2	
Sub-total for SDG-16		+16 (100 %)	
 <b>Strengthen the means of implementation and revitalize the global partnership for sustainable development</b>			
Research on SDG collaborations and strategies ahead	Yes - 72	+2	
Collaborations with local NGO for SDG implementation	Yes	+2	
Collaborations with government programs in SDG implementations	No		-2
Student volunteering programs for SDG implementations	Yes, NCC, NSS	+2	
Publication of SDG performance reports	No		-2
Dedicated courses that address sustainability and SDGs	Yes, Organic Farming, Indian Constitution etc	+2	
Outreach educational activities for the community on SDGs	Yes	+2	
Sub-total for SDG-17		+10 (71.4 %)	-4
Total for SDGs		261	37

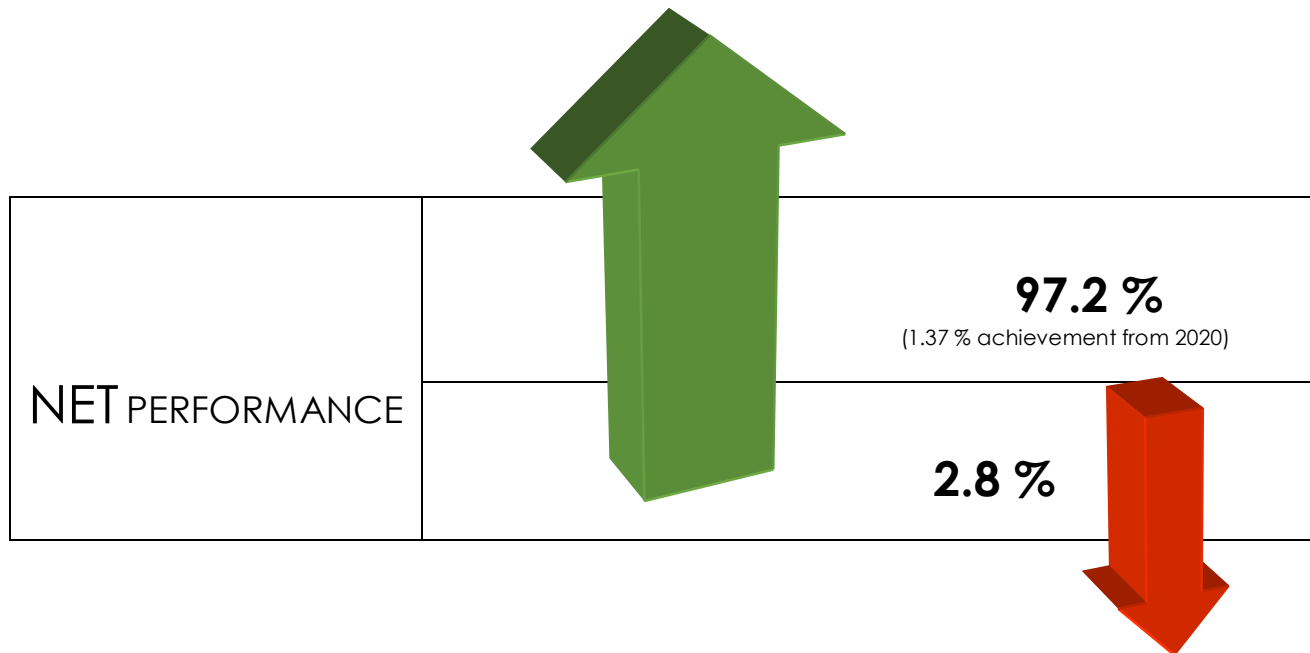




# Performance audit conclusion

## PERFORMANCE EVALUATION STATUS

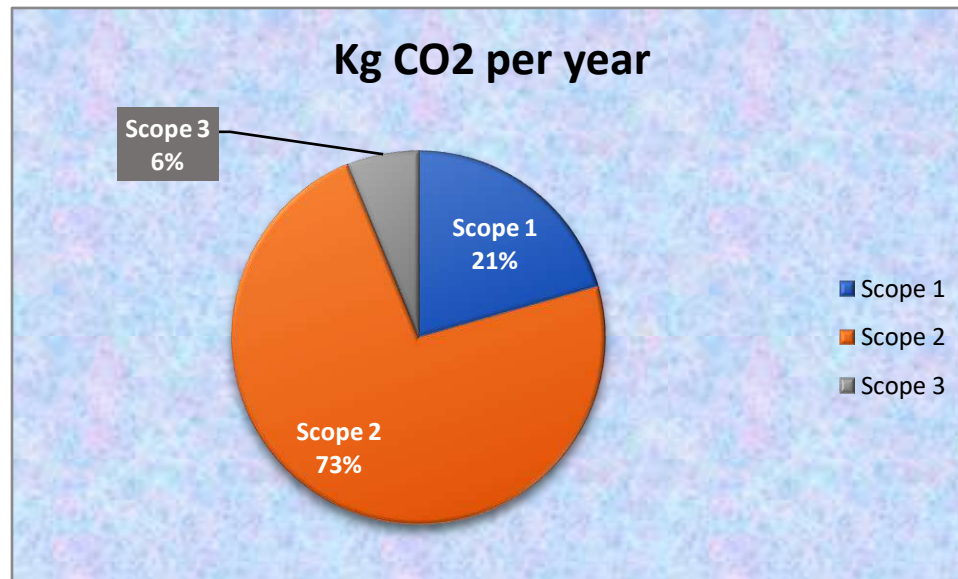
1. Management performance – 97.33 %
2. Operational performance – 90 %
3. Environmental performance – 100 %
4. Awards/ appreciations – 100 %



# Carbon footprint conclusion

The net carbon footprint of REVA University can be reported as 1025.3829 tCO<sub>2</sub>e, or Carbon intensity as 0.573 tCO<sub>2</sub>e per individual, 0.00153 tCO<sub>2</sub>e per capita per day and 0.00563 tCO<sub>2</sub>e per sq.mt.

Detailed examination shows that 73 % of CF is under scope 2 that is power consumption, followed by Scope 3 contributing 21 %. Actually the scope 1 direct emissions are comparatively negligible contributing only 6%.



The second largest contributor of GHG emission seems to be the scope 3 items. On close examination of these, it is observed that food waste contributes 50 %.

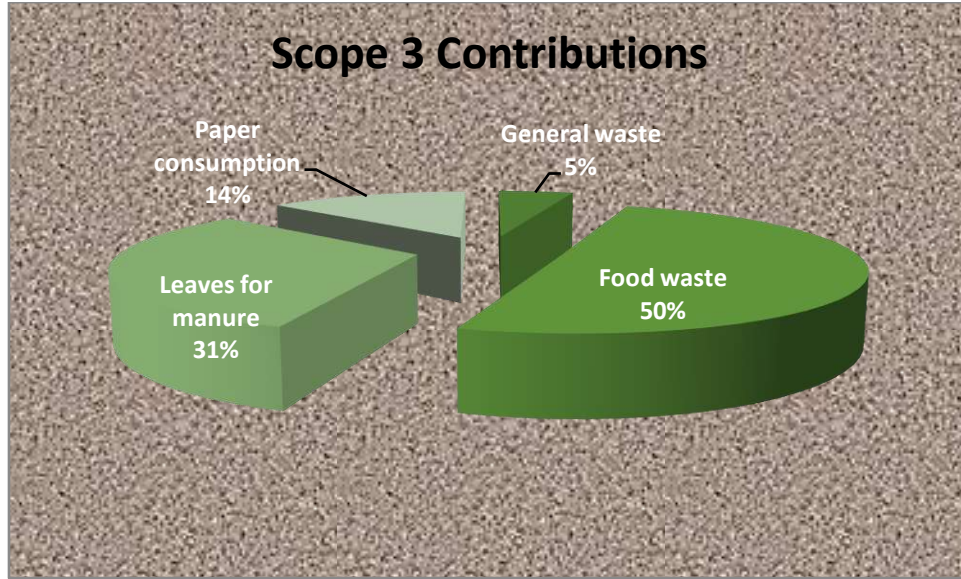
Input value of general waste = 7500 kg x 0.902 = 6765.0 Kg CO<sub>2</sub>

Input value of food waste = 74997 kg x 0.902 = 67647.294 Kg CO<sub>2</sub>

Input value of manure from leaves etc. = 46800 kg x 0.902 = 42213.6 Kg CO<sub>2</sub>

Input value of paper consumption average = 20000 kg x 0.902 = 18040.0 KgCO<sub>2</sub>

Item	Contribution of Kg CO2
General waste	6765
Food waste	67647.294
Leaves for manure	42213.6
Paper consumption	18040



Gross Carbon footprint generated : 2180.15 tCO2

Carbon footprint removal/ CDM : 1154.7671 tCO2

Net carbon footprint of REVA : 1025.3829 tCO2

Achievement in carbon reduction/ CDM : 52.96 %

## RECOMMENDATIONS & SUGGESTIONS

### A. SDG COMPLIANCE

- (i) **SDG 1- Programs to address decent dress/cloth to students/ staff:** *There may be some students, who may be finding it very difficult to stick on to the specified decent dress codes, but still may follow due to reasons of discipline. A program to help those, distribution in discrete mode so as to uphold their self-esteem, may be launched.*
- (ii) **SDG 1- Purchase directly from farmers/ agricultural fields:** *Purchasing from local agriculturists will help those people get the reasonable amount directly without any middle agent; and further reducing their cost & burden of transport to local markets/ agencies.*
- (iii) **SDG 2- Take whatever you can; but eat whatever you take:** *In order to reduce the food waste, it is advisable to have self service system with this slogan.*
- (iv) **SDG 2- Food waste display:** *Have a display of quantity of food waste, Day before yesterday –kg, Yesterday –kg, Today???*
- (v) **SDG 3- Students & staff programs for improving emotional health:** *Regularly conduct programs in making everyone (students, employees and their families) emotionally sound like personality development, stress management, social interactions, family interactions- that too not only in-campus but off-campus also.*
- (vi) **SDG 4- Research related to early dropouts due to families and parental behaviour:** *Have more research, findings and implementation of remedial measures on early drop outs at different levels of education (from pre-primary to higher education), which may help the regional, state and central administrations to develop appropriate planning's. The different aspects that may be considered are:*
  - a. *Some students have to go for work to support family*
  - b. *Some have to stay back home to look after their siblings while parents go for work*
  - c. *Some have to stay at home because their parents were divorced/ widowed etc.*

(vii) **SDG 4- Research related to early dropouts due to exposure to toxins /fear of insecurity/ harassments:** Here the different aspects to be considered are:

- a. Some students stay back due to early or unlimited exposure to alcohol, drugs, internet or even the bad influence from some evil corners of the society to indulge in anti-social activities
- b. Some students feel bad being older than their classmates
- c. Some students stay back due to depression, anxiety, low self-esteem etc
- d. Some stay back because they don't feel safe, loved or valued etc.

(VIII) **SDG 11- Innovative start-ups:** Have collaboration with more and more entrepreneur establishments in order to undertake R&D activities suited to their requirements as well as utilizing those findings in establishing more start-ups through the passing out students of the University.

(ix) **SDG 13- Target date for carbon neutral University:** Develop short-term, medium and long-term plans and fix a target date to attain carbon neutral University labeling.

## B. PERFORMANCE

- (i) **Off-campus citizen advisory group:** Citizen advisory group may be constituted for off-campus environment management.
- (ii) **Bore well water quality monitoring:** Regular monitoring of own source bore well water may be ensured.
- (iii) **Discouraging incineration:** Use of incinerators may be discouraged step by step.
- (iv) **Air quality display:** Displaying air quality inside the campus may be thought of.
- (v) **Lowering EPI Ratio:** Strategies to be adopted so that Energy Performance Index Ratio (EPI Ratio) is lowered to less than one for being in compliance with ECBC 2017.

## C. CARBON FOOTPRINT

- (i) **Carbon policy:** The environmental policy may incorporate programs aiming to carbon neutral campus
- (ii) **Target setting:** For achieving the carbon neutral campus, the University may develop short/medium & long term reduction targets and plans to achieve the same with a target year for achievement.



- (iii) **Renewable energy enhancement:** The use of purchased electricity may be brought down by introducing more and more solar installations as well as utilizing different means of renewable energy sources.
- (iv) **Carbon management team:** A carbon management team may be established with representatives from all categories of stakeholders with a view to monitor the carbon emissions regularly.
- (v) **Medals/trophies:** Department with minimum carbon emission, in a year or in a month, may be rewarded with eco-friendly labels/ medals/ trophies/ certificates to motivate other departments.
- (vi) **Take whatever you can; but eat whatever you take:** Programs may be implemented to reduce food waste. *Take whatever you can; but eat whatever you take*, may be considered on a pilot basis at any specified location.
- (vii) **Eco-suggestion box:** A suggestion box may be placed in the campus inviting innovative ideas from students/employees/ contractors/ visitors etc. on carbon reduction.

## ANNEXURES

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**ISSUED TO:**

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Rukmini Knowledge Park,  
Kattigenahalli, Yelahanka,  
Bangalore, Karnataka.

Report Number : VLL/VLS/22/06141/01  
Issue Date : 02.08.2022  
P.O. Number : WO/22/1/1411  
P.O. Date : 13/06/2022

Page No: 01 of 01

Sample Particulars: **Ambient Air Quality Monitoring**

Sample Location: **Near Administrative Building**

Sample Collected on	: 18/07/2022	Samples Registered on	: 20/07/2022
Analysis started on	: 20/07/2022	Analysis Completed on	: 02/08/2022
Test Required	: 12 Parameters as per MoEF & CC GSR 826(E) Notification.		
Samples Collected by Vimta Labs Limited.			

### TEST REPORT

Parameters	Test Method	UoM	NAAQ Limits	Results
Sulphur Dioxide (SO <sub>2</sub> )	Improved West and Gaeke Method-	µg/m <sup>3</sup>	80	13.3
Nitrogen Dioxide (NO <sub>x</sub> )	Modified Jacob & Hochheiser Method	µg/m <sup>3</sup>	80	19.6
Particulate Matter (PM10)	Gravimetric Method	µg/m <sup>3</sup>	100	41.9
Particulate Matter (PM2.5)	Gravimetric Method	µg/m <sup>3</sup>	60	18.1
Ammonia (NH <sub>3</sub> )	Indophenol Blue Method	µg/m <sup>3</sup>	400	<0.01
Benzene (C <sub>6</sub> H <sub>6</sub> )	Solvent Extraction followed by GC analysis	µg/m <sup>3</sup>	05	<0.01
Benzo(a) Pyrene in particulate phase	Solvent Extraction followed by GC analysis	ng/m <sup>3</sup>	01	<0.01
Arsenic as As	AAS/ICP Method	ng/m <sup>3</sup>	06	<0.01
Nickel as Ni	AAS/ICP Method	ng/m <sup>3</sup>	20	<0.01
Lead as Pb	AAS/ICP Method	µg/m <sup>3</sup>	1.0	<0.01
Carbon Monoxide as CO	NDIR spectroscopy method	µg/m <sup>3</sup>	2000	31
Ozone as O <sub>3</sub>	UV photometric method	µg/m <sup>3</sup>	100	5.8

Name and Designation of Authorized Signatory

**Dr. Subbareddy Mallampati**  
Dy. Manager-Environment

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P.O. Date : 13/06/2022

Page No: 01 of 01

Sample Particulars : **Ambient Noise Monitoring**

Sample Collected on	: 18/07/2022	Samples Registered on	: 20/07/2022
Analysis started on	: 20/07/2022	Analysis Completed on	: 02/08/2022
Statistical Parameters	: Leq. Noise in d(B)A		
Samples Collected by Vimta Labs Limited.			

**TEST REPORT**

Sr.No	Location	UoM	Day	Night
			d(B)A	
01	Near Swami Vivekananda Block	d(B)A	40.3	33.7
02	Near Admin Block	d(B)A	44.8	35.9
03	Near CV. Raman Block	d(B)A	41.1	34.1
04	Near Boys Hostel/Food Court	d(B)A	43.7	36.0
05	Near Visvesvaraya Block	d(B)A	42.6	35.3
06	Near Reva Health Center	d(B)A	39.4	27.6
Ambient Noise Standards as per The Noise Pollution (Regulation And Control) Rules, 2000 .S.O. 50 (E)			50	40

Name and Designation of Authorized Signatory

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INDIA

Report Number : VLL/VLS/22/06141/003  
Issue Date : 2022.08.02  
PO Ref : WO/22/1/1411  
PO Date : 2022.06.13

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<b>Sample Name</b>	: GROUND WATER SAMPLE (SUMP WATER)		
Sample Collection Date	: 2022.07.18	Sample Registration Date	: 2022.07.20
Sample Analysis date	: 2022.07.20	Analysis Completion Date	: 2022.08.02
Test Required	: As Per IS 10500:2012		
Method of Testing	: As per IS 3025 and APHA 23 <sup>rd</sup> Edition		
Sample Collected by Vimta Labs Limited.,			

**TEST REPORT**

Sr.No	Test Parameters	UOM	Limits as per IS:10500	RESULTS
1	pH	-	6.5 – 8.5 (NR)	7.09
2	Colour	Hazen	5(15)	3
3	Taste	-	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable
5	Conductivity	µS/cm	\$	640
6	Turbidity	NTU	1(5)	<1.0
7	Total Dissolved Solids	mg/L	500(2000)	407.3
8	Total Hardness as CaCO <sub>3</sub>	mg/L	200(600)	151.5
9	Total Alkalinity as CaCO <sub>3</sub>	mg/L	200(600)	65
10	Calcium as Ca	mg/L	75(200)	43.34
11	Magnesium as Mg	mg/L	30(100)	10.48
12	Residual Free Chlorine	mg/L	0.2(1)	<0.1
13	Total Boron as B	mg/L	0.5(1)	<0.01
14	Chlorides as Cl	mg/L	250(1000)	113.6
15	Sulphates as SO <sub>4</sub>	mg/l	200(400)	68.5
16	Fluorides as F	mg/l	1.0(1.5)	0.74
17	Nitrates as NO <sub>3</sub>	mg/l	45(NR)	26.77
18	Sodium as Na	mg/L	\$	76.2
19	Potassium as K	mg/L	\$	2.665
20	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/L	0.001 (0.002)	<0.001
21	Cyanides as CN	mg/L	0.05(NR)	<0.02
22	Anionic Detergents as MBAS	mg/L	0.2(1.0)	<0.20
23	Mineral Oil	mg/L	0.5(NR)	<0.01
24	Cadmium as Cd	mg/L	0.003(NR)	<0.003
25	Total Arsenic as As	mg/L	0.01(0.05)	<0.01
26	Copper as Cu	mg/L	0.05(1.5)	<0.01
27	Lead as Pb	mg/L	0.01(NR)	<0.01
28	Manganese as Mn	mg/L	0.1(0.3)	<0.01
29	Iron as Fe	mg/L	0.3(NR)	0.02
30	Total Chromium as Cr <sup>6+</sup>	mg/L	0.05(NR)	<0.01
31	Selenium as Se	mg/L	0.01(NR)	<0.01
32	Zinc as Zn	mg/L	5(15)	0.03
33	Aluminium as Al	mg/L	0.03(0.2)	<0.01
34	Mercury as Hg	mg/L	0.001(NR)	<0.001
35	Pesticides	-	Absent	Absent
36	E-Coli	MPN/100ml	Absent	Absent
37	Total Coliform	MPN/100ml	Absent	Absent

Results relate only to the sample tested.

Remarks: Instrument used: LC-MS/MS, GC-MS/MS & GC-MS with Purge and Trap; BDL: Below Detection limit;

Instrument used: Alpha counting system and Low Background Beta Counting system; BDL: Below Detection limit;

The submitted sample complies to the requirement of IS 10500:2012 with respect to the tested parameters.

- END OF THE REPORT -

Name and Designation of Authorized Signatory

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Report Number : VLL/VLS/22/06141/004  
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PO Date : 2022.06.13

Page 1 of 1

**Sample Name : DRINKING WATER SAMPLE (RO WATER-GIRLS MESS)**

Sample Collection Date : 2022.07.18 Sample Registration Date : 2022.07.20  
Sample Analysis date : 2022.07.20 Analysis Completion Date : 2022.08.02  
Test Required : As Per IS 10500:2012  
Method of Testing : As per IS 3025 and APHA 23<sup>rd</sup> Edition  
Sample Collected by Vimta Labs Limited.,

**TEST REPORT**

Sr.NO	Test Parameters	UOM	Limits as per IS:10500	RESULTS
1	pH	-	6.5 – 8.5 (NR)	7.01
2	Colour	Hazen	5(15)	4
3	Taste	-	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable
5	Conductivity	µS/cm	\$	154
6	Turbidity	NTU	1(5)	<1.0
7	Total Dissolved Solids	mg/L	500(2000)	94.7
8	Total Hardness as CaCO <sub>3</sub>	mg/L	200(600)	45.8
9	Total Alkalinity as CaCO <sub>3</sub>	mg/L	200(600)	15
10	Calcium as Ca	mg/L	75(200)	14.03
11	Magnesium as Mg	mg/L	30(100)	2.61
12	Residual Free Chlorine	mg/L	0.2(1)	<0.1
13	Total Boron as B	mg/L	0.5(1)	<0.01
14	Chlorides as Cl	mg/L	250(1000)	33.1
15	Sulphates as SO <sub>4</sub>	mg/l	200(400)	8.6
16	Fluorides as F	mg/l	1.0(1.5)	0.34
17	Nitrates as NO <sub>3</sub>	mg/l	45(NR)	6.452
18	Sodium as Na	mg/L	\$	13.91
19	Potassium as K	mg/L	\$	0.611
20	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/L	0.001 (0.002)	<0.001
21	Cyanides as CN	mg/L	0.05(NR)	<0.02
22	Anionic Detergents as MBAS	mg/L	0.2(1.0)	<0.20
23	Mineral Oil	mg/L	0.5(NR)	<0.01
24	Cadmium as Cd	mg/L	0.003(NR)	<0.003
25	Total Arsenic as As	mg/L	0.01(0.05)	<0.01
26	Copper as Cu	mg/L	0.05(1.5)	0.01
27	Lead as Pb	mg/L	0.01(NR)	<0.01
28	Manganese as Mn	mg/L	0.1(0.3)	<0.01
29	Iron as Fe	mg/L	0.3(NR)	<0.01
30	Total Chromium as Cr <sup>6+</sup>	mg/L	0.05(NR)	<0.01
31	Selenium as Se	mg/L	0.01(NR)	<0.01
32	Zinc as Zn	mg/L	5(15)	0.12
33	Aluminium as Al	mg/L	0.03(0.2)	<0.01
34	Mercury as Hg	mg/L	0.001(NR)	<0.001
35	Pesticides	-	Absent	Absent
36	E-Coli	MPN/100ml	Absent	Absent
37	Total Coliform	MPN/100ml	Absent	Absent

Results relate only to the sample tested.

Remarks: Instrument used: LC-MS/MS, GC-MS/MS & GC-MS with Purge and Trap; BDL: Below Detection limit;

Instrument used: Alpha counting system and Low Background Beta Counting system; BDL: Below Detection limit;

The submitted sample complies to the requirement of IS 10500:2012 with respect to the tested parameters.

- END OF THE REPORT -

Name and Designation of Authorized Signatory

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PO Date : 2022.06.13

Page 1 of 1

**Sample Name : BORE WELL WATER SAMPLE (NEAR STP)**

Sample Collection Date : 2022.07.18	Sample Registration Date : 2022.07.20
Sample Analysis date : 2022.07.20	Analysis Completion Date : 2022.08.02
Test Required : As Per IS 10500:2012	
Method of Testing : As per IS 3025 and APHA 23 <sup>rd</sup> Edition	
Sample Collected by Vimta Labs Limited.,	

**TEST REPORT**

Sr.No	Test Parameters	UOM	Limits as per IS:10500	RESULTS
1	pH	-	6.5 – 8.5 (NR)	7.13
2	Colour	Hazen	5(15)	4
3	Taste	-	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable
5	Conductivity	µS/cm	\$	459
6	Turbidity	NTU	1(5)	<1.0
7	Total Dissolved Solids	mg/L	500(2000)	279.7
8	Total Hardness as CaCO <sub>3</sub>	mg/L	200(600)	110.1
9	Total Alkalinity as CaCO <sub>3</sub>	mg/L	200(600)	17
10	Calcium as Ca	mg/L	75(200)	36.07
11	Magnesium as Mg	mg/L	30(100)	4.84
12	Residual Free Chlorine	mg/L	0.2(1)	<0.1
13	Total Boron as B	mg/L	0.5(1)	<0.01
14	Chlorides as Cl	mg/L	250(1000)	106.5
15	Sulphates as SO <sub>4</sub>	mg/l	200(400)	56.9
16	Fluorides as F	mg/l	1.0(1.5)	0.65
17	Nitrates as NO <sub>3</sub>	mg/l	45(NR)	2.003
18	Sodium as Na	mg/L	\$	54.6
19	Potassium as K	mg/L	\$	1.122
20	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/L	0.001 (0.002)	<0.001
21	Cyanides as CN	mg/L	0.05(NR)	<0.02
22	Anionic Detergents as MBAS	mg/L	0.2(1.0)	<0.20
23	Mineral Oil	mg/L	0.5(NR)	<0.01
24	Cadmium as Cd	mg/L	0.003(NR)	<0.003
25	Total Arsenic as As	mg/L	0.01(0.05)	<0.01
26	Copper as Cu	mg/L	0.05(1.5)	<0.01
27	Lead as Pb	mg/L	0.01(NR)	<0.01
28	Manganese as Mn	mg/L	0.1(0.3)	0.17
29	Iron as Fe	mg/L	0.3(NR)	0.01
30	Total Chromium as Cr <sup>6+</sup>	mg/L	0.05(NR)	<0.01
31	Selenium as Se	mg/L	0.01(NR)	<0.01
32	Zinc as Zn	mg/L	5(15)	<0.01
33	Aluminium as Al	mg/L	0.03(0.2)	<0.01
34	Mercury as Hg	mg/L	0.001(NR)	<0.001
35	Pesticides	-	Absent	Absent
36	E-Coli	MPN/100ml	Absent	Absent
37	Total Coliform	MPN/100ml	Absent	Absent

Results relate only to the sample tested.

Remarks: Instrument used: LC-MS/MS, GC-MS/MS & GC-MS with Purge and Trap; BDL: Below Detection limit;

Instrument used: Alpha counting system and Low Background Beta Counting system; BDL: Below Detection limit;

The submitted sample complies to the requirement of IS 10500:2012 with respect to the tested parameters.

- END OF THE REPORT -

Name and Designation of Authorized Signatory

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Page 1 of 1

**Sample Name : DOMESTIC WATER**

Sample Collection Date : 2022.07.18 Sample Registration Date : 2022.07.20  
Sample Analysis date : 2022.07.20 Analysis Completion Date : 2022.08.02  
Test Required : As Per IS 10500:2012  
Method of Testing : As per IS 3025 and APHA 23<sup>rd</sup> Edition  
Sample Collected by Vimta Labs Limited.,

**TEST REPORT**

Sr.NO	Test Parameters	UOM	Limits as per IS:10500	RESULTS
1	pH	-	6.5 – 8.5 (NR)	7.15
2	Colour	Hazen	5(15)	5
3	Taste	-	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable
5	Conductivity	µS/cm	§	738
6	Turbidity	NTU	1(5)	<1.0
7	Total Dissolved Solids	mg/L	500(2000)	472.6
8	Total Hardness as CaCO <sub>3</sub>	mg/L	200(800)	185.0
9	Total Alkalinity as CaCO <sub>3</sub>	mg/L	200(800)	120
10	Calcium as Ca	mg/L	75(200)	52.1
11	Magnesium as Mg	mg/L	30(100)	13.3
12	Residual Free Chlorine	mg/L	0.2(1)	<0.1
13	Total Boron as B	mg/L	0.5(1)	<0.01
14	Chlorides as Cl	mg/L	250(1000)	112.9
15	Sulphates as SO <sub>4</sub>	mg/l	200(400)	74.9
16	Fluorides as F	mg/l	1.0(1.5)	0.82
17	Nitrates as NO <sub>3</sub>	mg/l	45(NR)	12.45
18	Sodium as Na	mg/L	§	83.2
19	Potassium as K	mg/L	§	2.968
20	Phenolic Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/L	0.001 (0.002)	<0.001
21	Cyanides as CN	mg/L	0.05(NR)	<0.02
22	Anionic Detergents as MBAS	mg/L	0.2(1.0)	<0.20
23	Mineral Oil	mg/L	0.5(NR)	<0.01
24	Cadmium as Cd	mg/L	0.003(NR)	<0.003
25	Total Arsenic as As	mg/L	0.01(0.05)	<0.01
26	Copper as Cu	mg/L	0.05(1.5)	<0.01
27	Lead as Pb	mg/L	0.01(NR)	<0.01
28	Manganese as Mn	mg/L	0.1(0.3)	0.13
29	Iron as Fe	mg/L	0.3(NR)	0.01
30	Total Chromium as Cr <sup>6+</sup>	mg/L	0.05(NR)	<0.01
31	Selenium as Se	mg/L	0.01(NR)	<0.01
32	Zinc as Zn	mg/L	5(15)	<0.01
33	Aluminium as Al	mg/L	0.03(0.2)	<0.01
34	Mercury as Hg	mg/L	0.001(NR)	<0.001
35	Pesticides	-	Absent	Absent
36	E-Coli	MPN/100ml	Absent	Absent
37	Total Coliform	MPN/100ml	Absent	Absent

Results relate only to the sample tested.

Remarks: Instrument used: LC-MS/MS, GC-MS/MS & GC-MS with Purge and Trap; BDL: Below Detection limit;

Instrument used: Alpha counting system and Low Background Beta Counting system; BDL: Below Detection limit;

The submitted sample complies to the requirement of IS 10500:2012 with respect to the tested parameters.

- END OF THE REPORT -

Name and Designation of Authorized Signatory

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**Sample Name** : SOIL SAMPLE NEAR LIBRARY

Sample Collection Date	: 2022.07.18	Sample Registration Date	: 2022.07.20
Sample Analysis date	: 2022.07.20	Analysis Completion Date	: 2022.08.02
Test Required	: Aa per WO		
Method of Testing	: As per ML JACKSON AND SSSA GUIDELINES		
Sample Collected by Vimta Labs Limited.,			

**TEST REPORT**

S.No	Parameters	Unit	RESULTS
1	Texture		
a	Sand	%	49
b	Silt	%	23
c	Clay	%	28
2	Textural Class		Sandy Clay
3	Bulk Density	g/cc	1.42
4	pH (1:5 Aq.Extraction)	---	5.98
5	Conductivity (1:5 Aq.Extraction)	µS/cm	194
6	Exchangeable Calcium as Ca	mg/kg	2016.0
7	Exchangeable Magnesium as Mg	mg/kg	525.6
8	Exchangeable Sodium as Na	mg/kg	267.8
9	Sodium Absorption Ratio (SAR)	---	1.37
10	Available Nitrogen as N	Kg/hac	86.9
11	Available Phosphorous as P	Kg/hac	58.9
12	Available Potassium as K	Kg/hac	164.8
13	Organic Carbon	%	0.32
14	Organic Matter	%	0.55
15	Water Soluble Chlorides as Cl	mg/kg	110
16	Water Soluble Sulphates as SO4	mg/kg	48
17	Aluminum	%	6.55
18	Total Iron	%	2.24
19	Manganese	mg/kg	196.43
20	Boron	mg/kg	<0.1
21	Zinc	mg/kg	21.85
22	Total Chromium as Cr	mg/kg	45.61
23	Lead as Pb	mg/kg	21.36
24	Nickel as Ni	mg/kg	22.69
25	Arsenic as As	mg/kg	<0.1
26	Mercury as Hg	mg/kg	<0.1
27	Cadmium as Cd	mg/kg	<0.1
28	Exchangeable Sodium	meq/100g	1.27
29	Exchangeable Potassium	meq/100g	0.65
30	Exchangeable Calcium	meq/100g	11.00
31	Exchangeable Magnesium	meq/100g	4.78
32	Cation Exchange Capacity	meq/100g	17.71

Results relate only to the sample tested.

Remarks: Instrument used: ICP OES ; BDL: Below Detection limit;

- END OF THE REPORT -

Name and Designation of Authorized Signatory

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Report Number : VLL/VLS/22/06141/008  
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PO Date : 2022.06.13

Page 1 of 1

**Sample Name : SOIL SAMPLE NEAR DOWN SLOPE OF STP DISCHARGE POINT**

Sample Collection Date : 2022.07.18      Sample Registration Date : 2022.07.20  
Sample Analysis date : 2022.07.20      Analysis Completion Date : 2022.08.02  
Test Required : As Per WO  
Method of Testing : As per ML JACKSON AND SSSA GUIDELINES  
Sample Collected by Vimta Labs Limited.,

**TEST REPORT**

S.No	Parameters	Unit	RESULTS
1	Texture		
a	Sand	%	46
b	Silt	%	23
c	Clay	%	31
2	Textural Class		Sandy Clay
3	Bulk Density	g/cc	1.36
4	pH (1:5 Aq.Extraction)	----	6.24
5	Conductivity (1:5 Aq.Extraction)	µS/cm	245
6	Exchangeable Calcium as Ca	mg/kg	4762.7
7	Exchangeable Magnesium as Mg	mg/kg	907.2
8	Exchangeable Sodium as Na	mg/kg	253.4
9	Sodium Absorption Ratio (SAR)	----	0.88
10	Available Nitrogen as N	Kg/hac	100.4
11	Available Phosphorous as P	Kg/hac	62.8
12	Available Potassium as K	Kg/hac	188.9
13	Organic Carbon	%	0.38
14	Organic Matter	%	0.66
15	Water Soluble Chlorides as Cl	mg/kg	85
16	Water Soluble Sulphates as SO4	mg/kg	59
17	Aluminum	%	3.73
18	Total Iron	%	1.48
19	Manganese	mg/kg	131.92
20	Boron	mg/kg	<0.1
21	Zinc	mg/kg	29.15
22	Total Chromium as Cr	mg/kg	24.70
23	Lead as Pb	mg/kg	12.13
24	Nickel as Ni	mg/kg	11.36
25	Arsenic as As	mg/kg	<0.1
26	Mercury as Hg	mg/kg	<0.1
27	Cadmium as Cd	mg/kg	<0.1
28	Exchangeable Sodium	meq/100g	1.26
29	Exchangeable Potassium	meq/100g	0.75
30	Exchangeable Calcium	meq/100g	27.14
31	Exchangeable Magnesium	meq/100g	8.62
32	Cation Exchange Capacity	meq/100g	37.76

Results relate only to the sample tested.

Remarks: Instrument used: ICP OES ; BDL: Below Detection limit;

- END OF THE REPORT -

Name and Designation of Authorized Signatory

*(Signature)*  
**Dr.Subbareddy Mallampati**  
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PO Date : 2022.06.13

Page 1 of 1

<b>Sample Name</b> :	SOIL SAMPLE NEAR DOWN SLOPE OF SOLID WASTE MANAGEMENT AREA		
Sample Collection Date :	2022.07.18	Sample Registration Date :	2022.07.20
Sample Analysis date :	2022.07.20	Analysis Completion Date :	2022.08.02
Test Required :	As Per WO		
Method of Testing :	As per ML JACKSON AND SSSA GUIDELINES		
Sample Collected by Vimta Labs Limited.,			

**TEST REPORT**

S.No	Parameters	Unit	RESULTS
1	Texture		
a	Sand	%	51
b	Silt	%	23
c	Clay	%	26
2	Textural Class		Sandy Clay
3	Bulk Density	g/cc	1.38
4	pH (1:5 Aq.Extraction)	----	3.48
5	Conductivity (1:5 Aq.Extraction)	µS/cm	179
6	Exchangeable Calcium as Ca	mg/kg	1556.6
7	Exchangeable Magnesium as Mg	mg/kg	354.5
8	Exchangeable Sodium as Na	mg/kg	327.5
9	Sodium Absorption Ratio (SAR)	----	1.95
10	Available Nitrogen as N	Kg/hac	96.8
11	Available Phosphorous as P	Kg/hac	48.8
12	Available Potassium as K	Kg/hac	154.8
13	Organic Carbon	%	0.42
14	Organic Matter	%	0.72
15	Water Soluble Chlorides as Cl	mg/kg	146
16	Water Soluble Sulphates as SO4	mg/kg	72
17	Aluminum	%	5.60
18	Total Iron	%	2.07
19	Manganese	mg/kg	146.01
20	Boron	mg/kg	<0.1
21	Zinc	mg/kg	23.23
22	Total Chromium as Cr	mg/kg	37.19
23	Lead as Pb	mg/kg	16.84
24	Nickel as Ni	mg/kg	16.70
25	Arsenic as As	mg/kg	<0.1
26	Mercury as Hg	mg/kg	<0.1
27	Cadmium as Cd	mg/kg	<0.1
28	Exchangeable Sodium	meq/100g	1.60
29	Exchangeable Potassium	meq/100g	0.62
30	Exchangeable Calcium	meq/100g	8.74
31	Exchangeable Magnesium	meq/100g	3.32
32	Cation Exchange Capacity	meq/100g	14.27

Results relate only to the sample tested.

Remarks: Instrument used: ICP OES ; BDL: Below Detection limit;

- END OF THE REPORT -

Name and Designation of Authorized Signatory

**Dr. Subbareddy Mallampati**  
Dy. Manager-Environment

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ISSUED TO

M/s.REVA UNIVERSITY  
Rukmini Knowledge Park,  
Kattigenahalli, Yelahanka,  
Bengaluru,,  
INDIA

Report Number : VLL/VLS/22/06141/010  
Issue Date : 2022.08.02  
PO Ref : WO/22/1/1411  
PO Date : 2022.06.13

Page 1 of 1

Sample Name : STP WATER

Sample Collection Date : 2022.07.18 Sample Registration Date : 2022.07.20  
Sample Analysis date : 2022.07.20 Analysis Completion Date : 2022.08.02  
Test Required : As Per WO  
Method of Testing : As per APHA 23<sup>rd</sup> Edition and IS 3025 Part-44,  
Sample Collected by Vimta Labs Limited.,

**TEST REPORT**

S.No	Parameters	Unit	STP INLET	STP OUTLET	Inland Surface Water Discharge Standards as per Schedule - VI
1	pH @ 25°C	--	6.69	7.27	5.5 – 9.0
2	Total Suspended Solids	mg/l	520	12.4	<100
3	Oil & Grease	mg/l	11.9	<0.1	<10
4	Total Residual Chlorin	mg/l	<0.1	<0.1	<1.0
5	Ammonical Nitrogen as N	mg/l	11.8	<0.1	<50
6	Total Kjeldhal Nitrogen as NH <sub>3</sub>	mg/l	38.6	<0.1	<100
7	Free Ammonia as NH <sub>3</sub>	mg/l	3.86	<0.1	<5.0
8	Biological Oxygen Demand	mg/l	184	<3.0	<30.0
9	Chemical Oxygen Demand	mg/l	530	20	<250
10	Arsenic as As	mg/l	<0.01	<0.01	<0.2
11	Mercury as Hg	mg/l	<0.001	<0.001	<0.01
12	Lead as Pb	mg/l	<0.01	<0.01	<0.1
13	Cadmium as Cd	mg/l	<0.01	<0.01	<2.0
14	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	<0.05	<0.05	<0.1
15	Total Chromium as Cr	mg/l	<0.01	<0.01	<2.0
16	Copper as Cu	mg/l	<0.01	<0.01	<3.0
17	Zinc as Zn	mg/l	0.49	0.24	<5.0
18	Selenium as Se	mg/l	<0.01	<0.01	<0.05
19	Nickel as Ni	mg/l	<0.01	<0.01	<3.0
20	Cyanide as CN	mg/l	<0.02	<0.02	<0.2
21	Fluoride as F	mg/l	1.22	1.04	<2.0
22	Dissolved Phosphates as P	mg/l	0.72	0.31	<5.0
23	Sulphide as S	mg/l	8.24	0.65	<2.0
24	Phenoile Compounds as C <sub>6</sub> H <sub>5</sub> OH	mg/l	<0.002	<0.002	<1.0
25	Manganese as Mn	mg/l	0.11	0.04	<2.0
26	Iron as Fe	mg/l	0.16	0.06	<3.0
27	Vanadium as V	mg/l	<0.01	<0.01	<0.2
28	Nitrate Nitrogen	mg/l	13.48	5.44	<10
29	Residual Sodium Carbonate	me/l	1.065	0.3725	--

Results relate only to the sample tested.

Remarks: Instrument used: ICP OES ; BDL: Below Detection limit;

- END OF THE REPORT -

Name and Designation of Authorized Signatory

**Dr. Subbareddy Mallampati**  
**Dy. Manager-Environment**

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## Abhivriddhi Programme

Abhivriddhi Programme being a CSR project of REVA University, it is cascading the spirit of healthy living through education at the adopted Government Schools. Streamlining in this path REVA University was bestowed with a certificate issued by Mahatma Gandhi National Council of Rural Education Department of Higher Education, Minister of Education, Government of India, for being "Recognised Social Entrepreneurship, Swachh & Rural Engagement". The Chief Minister of Karnataka Sri. Yeddyurappa conferred a Certificate in connection with school Adoption Programme taken up by REVA University which was acknowledged and accepted with honour and pride. In the last two years various activities were planned and successfully conducted, the Post Covid Awareness programme was one first among them, in which a general awareness on the Pandemic was briefed to the students, the concept of social distancing and maintenance of personal hygiene was also included. Masks were distributed and the use and importance of sanitizer was inducted to the students of respective adopted schools. Saplings were planted at the adopted schools with the aim of emphasising the importance of saving the environment. To commemorate the Founder's day, various competitions were held at all the Government schools for the children such as Singing competition, Quiz Competition, Drawing and painting competition which the students participated with great zeal. In the last two years, many events were conducted which are listed in the table below

Activities Conducted in the Schools			
Sl.No	Name Of Programmes/ Activities	No Of Programmes/ Activities	No of Beneficiaries
1	Post Covid Awareness Cam and Mask Distribution	10	550
2	legal Rights	1	135
3	Computer Literacy FDP	5	60
4	Computer Literacy SDP	1	75
5	Swach Campus	1	11
6	Energy Conversation	1	67
7	Cultural Programmes	5	115
8	Water Conservation	1	46
9	Cancer Awareness Camp	1	84
10	National Science Day	2	80
11	Setting up of Math Lab	3	500
12	Motivational Talk	2	100
13	Mental Health Awareness	2	350
14	Pole Installation	1	165
15	Mathrubhasaha Divasa	1	80
16	Importance of English language	1	160
	Total	38	2587

Covid Awareness Programme



Mask Distribution



Induction on use of Sanitizer



Sapling Plantation



Painting Activities



Quiz Competition



Runnig Race



Health Camp



Legal Aid



Pole Installation



Setting up of Math Lab



Distribution of Stationery





**ABHIVRIDDHI**  
Quality Education For All

## Education on Wheels (EOW) Program

### Report 2021 -22

#### About:

Education on Wheels (EOW) is an integrated approach towards improving the quality of education for underprivileged children. It seeks to ensure pre-primary and primary education for all children up to the age of 14 leading to their overall development.

#### Project Methodology:

Before making an intervention following steps will be undertaken:

- ❑ **Need Based Assessment:** A Need Based Assessment study will be conducted to collect data on the target group to assess the current learning level, frame a context based capsule design which can be later used as a reference.
- ❑ **ASER Test:** An ASER test will be conducted to mark the learning levels of the community kids for further categorization into the capsules.
- ❑ **Capacity Building:** In order to run the program efficiently, our team will conduct some capacity building exercises to train the teachers and the staff.
- ❑ **Capsule Implementation:** The designed capsule will be implemented at three levels with 3months' duration for each



### Special Features of Project:

- **Mobility:** The EOW can be taken to any nook and corner of the community due to its super concise size and mobility.
- **Audio-Visuals:** The LCD TV installed in the EOW Bus appeals to the kids in the community as they are attracted to the idea of television which they get different experience and access in their regular lives.
- **Participative curriculum:** The curriculum is designed after considering the learning level of kids' in the community, thus, making it easy to understand and relate to.
- **Dialogic:** The audio-video series are meant to be dialogic as it provokes cognitive thinking among the kids which helps them to raise questions and seek answers from their instructor.

### Outcome of the project:

1. Increase in the Literacy numeracy among community kids.
2. Increase in % of community children between age group 3-12 years enrolled in formal schools.
3. Feedback in the form of an evaluation that proves the information necessary to repeat the programming cycle
4. The EOW's system approach is adaptable to a variety of multiple settings, serving the various need of administrators, instructors, trainers, and corporate users, as well as the planners.
5. The Program Planning EOW is a working model that gives program planners and community/economic developers a hands-on tool that provides a systems approach to planning.
6. The EOW bridges the gap between linear and nonlinear models. It also makes the transition from theory to practice a successful one.
7. It addresses the contextual realities of organizational expectations, and constituent and societal need as well as the organizational expectations

### REVA UNIVERSITY LAUNCHES EDUCATION ON WHEELS

**November 17, 2021, Bengaluru:** Premier educational institution REVAUniversity launches 'Education on Wheels', a student outreach initiative that will provide immersive learning experience to students of community schools in rural areas.

The University will take modern education to the doorsteps of the students through a mobile lab with 15-seater facility, equipped with learning infrastructure like a projector, computers, Wi-Fi connection, SMART TV, among other facilities.

The lab will introduce students to basic and advanced learning in emerging domains like block coding, designing, and other areas. We envision to provide comprehensive skills to students through the lab and foster holistic development of students.



REVA University believes quality education is the right of every child, and to empower them with modern education, 'Education on Wheels' has been launched. Through this initiative, students will gain free access to digital learning and will be trained in certification programmes.

### KEY HIGHLIGHTS OF EDUCATION ON WHEELS

- ❖ A university bus (Model- Ashok Leyland 4900MM Wheel) has been converted into a lab centre
- ❖ The lab is a 15-seater facility equipped with modern facilities like Wi-Fi connection, computer monitors, projectors, among other modern educational needs
- ❖ 'Education on Wheels' will provide modern education to rural school students
- ❖ As many as 1,000 students of government schools will benefit from this initiative
- ❖ The lab will also have modern facilities like 52 inch SMART TV for video conferencing
- ❖ Fifteen computer monitors, chairs, keyboards, mouse, tables, desks have been set up in the lab
- ❖ The bus will have CCTV cameras for surveillance
- ❖ The lab will not be used for any commercial purposes
- ❖ 'Education on Wheels' facility will be available for students of government schools on weekdays between 9 AM and 6 PM
- ❖ There will be NO FEE to use the lab

### UNIQUE FEATURES OF 'EDUCATION ON WHEELS'

- ❖ Education on Wheels is an effort to provide equal opportunity for learners in Class 4-10
- ❖ Our objective is to ensure nobody is deprived of quality education
- ❖ We aim to go to remote and rural areas and provide the students modern learning material
- ❖ Students of government schools will have access to mobile library through Education on Wheels
- ❖ Students are introduced and allowed to make use of computer facilities
- ❖ Laboratory experiments can be performed
- ❖ E-content on various areas is developed by the faculty of REVA University and will be handed over to learners in the form of DVDs. All E-Content is also made available on Google play store
- ❖ The lab has educational materials and toys will cater to the needs of the learners
- ❖ Content is available in both English and Kannada



Speaking about the initiative, Hon'ble Chancellor of REVA University, Dr. P. Shyama Raju, said, REVA University has been a forerunner in enabling tech-driven education, and now it is taking digital learning to the doorsteps of students at community schools.

"The Education on Wheels is a one-of-its-kind initiative that will introduce government school students to advanced areas of learning and offer them an interactive, engaging and immersive learning experience. We aim to provide a unique learning exposure to students from all walks of life and this mobile lab facility will enhance the learning experience of the students," Dr Shyama Raju said.

He further stated that the 'Education on Wheels' lab will be stationed at the 10 government schools adopted by REVA University. The lab facility will be available for free to all the government school students.

### **DIGITAL CERTIFICATION COURSES**

With the University's strength and expertise, following 12 courses are ready to launch. The content will be available in English and with infographics in Kannada, the content will be effective and easy to learn.

1. Know your rights: Fundamentals of Law
2. Electronics and Communication for Digital Education
3. Environmental Science
4. Science in Everyday Life
5. Basic English and Grammar
6. Understanding Microsoft Packages with hands on experiments
7. Art for Young Artist: Colour Theory & Painting



8. Sources of Electrical Energy and its applications
9. Financial Literacy and Importance of saving
10. Introduction to Mechanical Designs and its applications
11. Fundamentals of Computers & Digital Literacy
12. Innovation and Entrepreneurship

**Software for practical exposure**

The software provided for practical learning on various domains are as follows:

1. Microsoft Office Package
2. Adobe Reader
3. Block Coding Software
4. Programming Language Compilers and Interpreters
5. 3D Painting Software
6. Typing Tutor
7. English Grammar Learning Software

**Sample Certificate:**



<b>Education on Wheels</b>					
<b>SL No</b>	<b>School</b>	<b>Number of students</b>	<b>Duration</b>	<b>Time</b>	<b>School In charge</b>
1	<b>Battera Maranahalli</b>	<b>Total: 114</b>	<b>1 Hour per Batch</b> □	10 AM to 3 PM	School of Mechanical Engineering
	1st STD	29			
	2nd STD	17			
	3rd STD	20			
	4th STD	15			
	5th STD	10			
	6th STD	9			
	7th STD	8			
8th STD	6				
2	<b>Sonnappanahalli</b>	<b>Total: 313</b>	1 Hour per Batch	10 AM to 3 PM	School of Arts & Humanities & School of Legal Studies
	1st STD	36			
	2nd STD	27			
	3rd STD	23			
	4th STD	23			
	5th STD	32			
	6th STD	63			
	7th STD	50			
8th STD	49				
3	<b>Marenahalli</b>	<b>Total: 108</b>	1 Hour per Batch	10 AM to 3 PM	School of Civil Engineering
	<b>1st STD</b>	<b>11</b>			
	<b>2nd STD</b>	<b>12</b>			
	<b>3rd STD</b>	<b>13</b>			
	<b>4th STD</b>	<b>7</b>			
	<b>5th STD</b>	<b>12</b>			
	<b>6th STD</b>	<b>17</b>			
	<b>7th STD</b>	<b>21</b>			
<b>8th STD</b>	<b>15</b>				
4	<b>Arebinnamangala</b>	<b>Total: 43</b>	1 Hour per Batch	10 AM to 3 PM	School of Computer Science & Applications
	<b>1st STD</b>	<b>6</b>			

	<b>2nd STD</b>	<b>4</b>			
	<b>3rd STD</b>	<b>5</b>			
	<b>4th STD</b>	<b>8</b>			
	<b>5th STD</b>	<b>3</b>			
5	<b>Jalige</b>	<b>Total: 21</b>	1 Hour per Batch	10 AM to 3 PM	School of Architecture
	1st STD	3			
	2nd STD	3			
	3rd STD	3			
	4th STD	0			
	5th STD	1			
	6th STD	2			
	7th STD	9			
	8th STD	0			
6	<b>BandiKodigehalliPalya</b>	<b>Total: 11</b>	1 Hour per Batch	10 AM to 3 PM	School of Electrical and Electronics Engineering
	1st STD	0			
	2nd STD	3			
	3rd STD	3			
	4th STD	1			
	5th STD	3			
	6th STD	1			
7	<b>Huttanahalli</b>	<b>Total: 40</b>	1 Hour per Batch	10 AM to 3 PM	Applied Science
	1st STD	7			
	2nd STD	7			
	3rd STD	8			
	4th STD	9			
	5th STD	9			
8	<b>MahadevaKodigehalli</b>	<b>Total: 20</b>	1 Hour per Batch	10 AM to 3 PM	School of Computing & Information Technology & Performing Arts
	1st STD	1			
	2nd STD	5			
	3rd STD	4			
	4th STD	7			
	5th STD	5			

9	<b>Kattigenahalli</b>	<b>Total: 225</b>	1 Hour per Batch	10 AM to 3 PM	School of Electronics & Communications Engineering
	1st STD	13			
	2nd STD	36			
	3rd STD	32			
	4th STD	36			
	5th STD	41			
	6th STD	36			
	7th STD	31			
	8th STD	0			
<b>10</b>	<b>Singahalli Government School</b>	<b>1</b>	1 Hour	10 AM to 3 PM	School of Commerce & Management Studies & School Applied Science

**EWV Visit Details:**

SL NO	School	Date	Time	Visited Place	Students Trained	Number of students Trained	Number of Trainers	Number of Certificates Issued	Remarks
1	ECE	03-12-2021	11.30 AM to 3.30 PM	Kattegenahalli Adopted School	4th to 8th STD	102	8	100	Completed
2	Legal Studies & Arts and Humanities	22nd & 23rd Dec 2021	9 AM to 3 PM	Sonnappahalli Adopted School	4th to 8th STD	116	5	100	Completed
3	EEE	30-12-2021	10AM to 3.30 PM	Bandikodigehalli Palya Govt School	2nd to 5th STD	15	10	15	Completed
4	Architecture	03-01-2022	10.30 to 12.30 PM	Jalige	1st to 7th STD	31	6	32	Completed
5	Applied Science	04-01-2022	11 AM to 3 PM	Huttinahalli	1st to 5th STD	45	25	45	Postponed due to Bus Break Down
6	Mechanical	05-01-2022	9 AM to 3 PM	Batteramaharanahalli	4th to 8th STD	50	5	50	

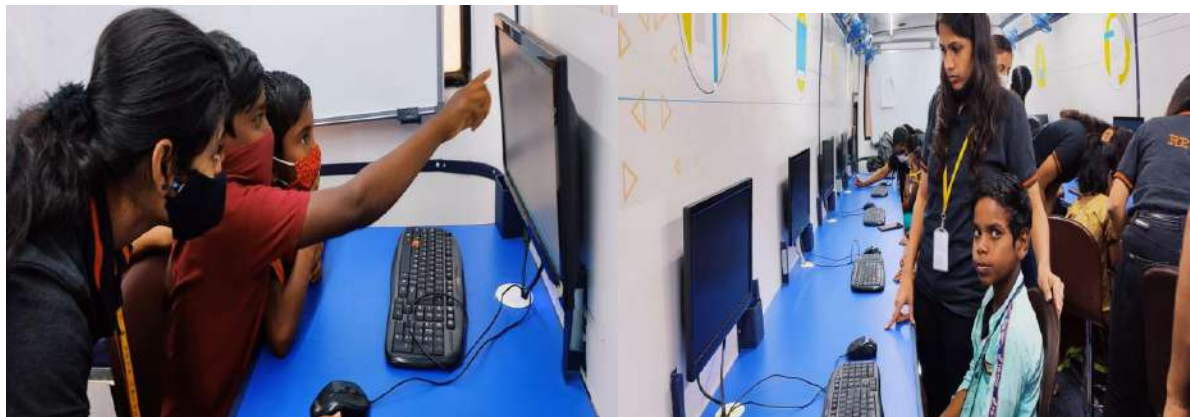
Photographs:





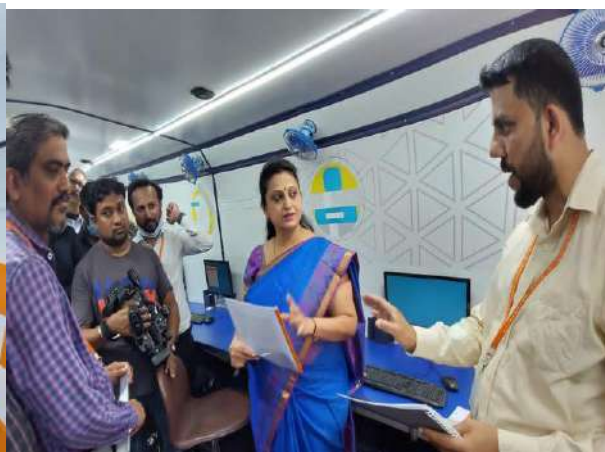






<b>Education on Wheels (EOW) visit to "Chikkaballapur"</b>	
<b>Date</b>	<b>30/03/2022 @ 11.30 AM</b>
<b>Venue</b>	<b>DC Office, Chikkaballapur,</b>
<b>Chief Guest</b>	<b>Smt R. Latha, IAS</b> Deputy Commissioner & District Magistrate of Chikkaballapur
<b>REVA Team members</b>	Dr. N Ramesh, Registrar, Mr.Raghunandan K from School of Civil Engineering, NatarajUrs H D from School of ECE and Aman V C from Branding have been part of this event.
<b>Number of Alumni present</b>	03
<b>Number of Media agency present</b>	30
<b>About Event</b>	<ul style="list-style-type: none"> <li>• Education on Wheels (EOW) event was organized on 30/3/2022 atDC Office, Chikkaballapur.</li> <li>• The event was inaugurated by the chief guest Smt R. Latha, IAS.</li> <li>• Dr. N Ramesh, Registrar explained the chief guest about the approach of REVA University towards improving the quality of education for underprivileged children through Education on Wheels. He also enlightened the unique features of EDUCATION ON WHEELS'</li> <li>• Mr. Raghunandan K given the demo of digital certification courses</li> <li>• Smt R. Latha addressing to media, talked about the importance of Digital literacy in current world and the beneficiaries have to take the advantage of this initiative from REVA University</li> <li>• Dr. N Ramesh addressed to media persons about the REVA University's noble initiatives such as Jagruthi, Adoption of Govt Schools and VanaMahotsava events and their consequential benefits to the society.</li> </ul>
<b>Outcome of the Event</b>	<ul style="list-style-type: none"> <li>• Smt R. Latha and media persons appreciated the noble initiative taken up by REVA University</li> <li>• The matter of Education on Wheels event got published in all the local newspapers and streamed across all the news channels</li> </ul>

**Photographs:**



<b>Education on Wheels (EOW) visit to "Kolar"</b>	
<b>Date</b>	<b>31/03/2022 @ 10.30 AM</b>
<b>Venue</b>	<b>Hotel Aaradhya Grand, Near Nandini Palace, National Highway, Kolar</b>
<b>Chief Guest</b>	<b>Sri. K. R. Ramesh Kumar</b> MLA, Former Speaker, Karnataka Legislative Assembly, Karnataka
<b>REVA Team members</b>	Dr. N Ramesh, Registrar, Mr.Raghunandan K from School of Civil Engineering, Mr. Vijaykumar from School of Mech and Aman V C from Branding have been part of this event.
<b>Number of Alumni present</b>	05
<b>Number of Media agency present</b>	30
<b>About Event</b>	<ul style="list-style-type: none"> <li>• Education on Wheels (EOW) event was organized on 31/3/2022 at Hotel Aaradhya Grand, Kolar.</li> <li>• The event was inaugurated by the chief guest Sri. K. R. Ramesh Kumar.</li> <li>• Dr. N Ramesh, Registrar explained the chief guest about the approach of REVA University towards improving the quality of education for underprivileged children through Education on Wheels. He also enlightened the unique features of EDUCATION ON WHEELS'</li> <li>• Mr. Raghunandan K given the demo of digital certification courses</li> <li>• Sri. K. R. Ramesh Kumar addressing to media, talked about the importance of Digital literacy in current world and the beneficiaries have to take the advantage of this initiative from REVA University</li> <li>• Dr. N Ramesh addressed to media persons about the REVA University's noble initiatives such as Jagruthi, Adoption of Govt Schools and VanaMahotsava events and their consequential benefits to the society.</li> </ul>
<b>Outcome of the Event</b>	<ul style="list-style-type: none"> <li>• Sri. K. R. Ramesh Kumar and media persons appreciated the noble initiative taken up by REVA University</li> <li>• The matter of Education on Wheels event got published in all the local newspapers and streamed across all the news channels</li> </ul>

**Photographs:**



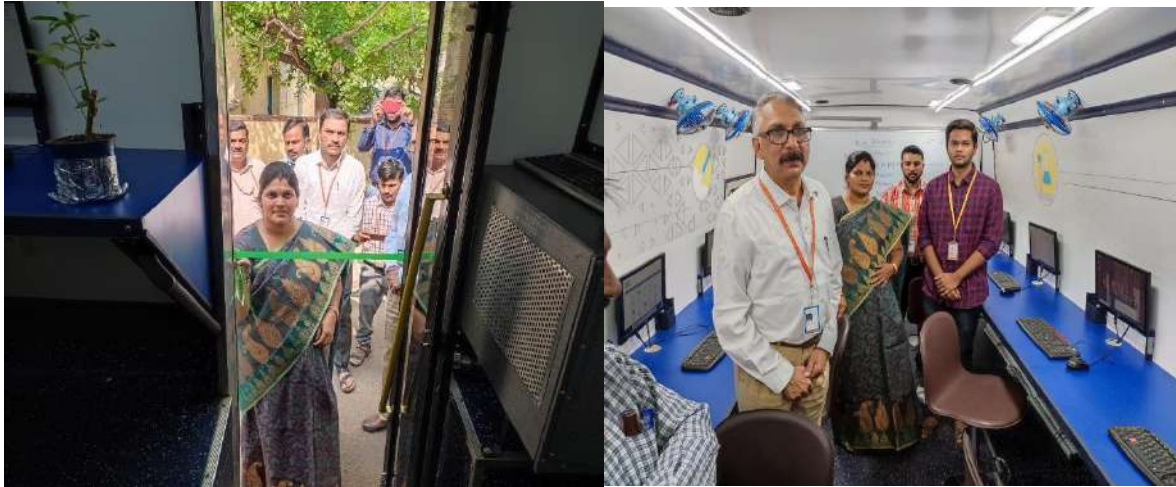


<b>Education on Wheels (EOW) visit to "Bellary"</b>	
<b>Date</b>	<b>06/04/2022 @ 10.30 AM</b>
<b>Venue</b>	<b>Press Club, Bellary</b>
<b>Chief Guest</b>	<b>Smt. M. RajeshwariSubbarayadu</b> Mayor, Bellary MahanagaraPalike, Bellary
<b>REVA Team members</b>	Dr. N Ramesh, Registrar, Mr.Raghunandan K from School of Civil Engineering, AdithyaPoojary From UIIC and Shivasharanappa from Branding have been part of this event.
<b>Number of Alumni present</b>	04
<b>Number of Media agency present</b>	30
<b>About Event</b>	<ul style="list-style-type: none"> <li>• Education on Wheels (EOW) event was organized on 6/4/2022 at Press Club, Bellary.</li> <li>• The event was inaugurated by the chief guest SmtM. RajeshwariSubbarayadu.</li> <li>• Dr. N Ramesh, Registrar explained the chief guest about the approach of REVA University towards improving the quality of education for underprivileged children through Education on Wheels. He also enlightened the unique features of EDUCATION ON WHEELS'</li> <li>• Mr. Raghunandan K given the demo of digital certification courses</li> <li>• SmtM. RajeshwariSubbarayadu addressing to media, talked about the importance of Digital literacy in current world and the</li> </ul>



	<p>beneficiaries have to take the advantage of this initiative from REVA University</p> <ul style="list-style-type: none"> <li>• Dr. N Ramesh addressed to media persons about the REVA University's noble initiatives such as Jagruthi, Adoption of Govt Schools and VanaMahotsava events and their consequential benefits to the society.</li> </ul>
<p><b>Outcome of the Event</b></p>	<ul style="list-style-type: none"> <li>• SmtM. RajeshwariSubbarayadu and media persons appreciated the noble initiative taken up by REVA University</li> <li>• The matter of Education on Wheels event got published in all the local newspapers and streamed across all the news channels</li> </ul>

**Photographs:**





Education on Wheels (EOW) visit to "Raichur"	
<b>Date</b>	07/04/2022 @ 11.30 AM
<b>Venue</b>	Press Club, Raichur
<b>Chief Guest</b>	<b>Shri. Nikhil B, IPS</b> Superintendent of Police, Raichur
<b>REVA Team members</b>	Dr. N Ramesh, Registrar, Mr.Raghunandan K and Mr. Sanjay Raj from School of Civil Engineering and Shivasharanappa from Branding have been part of this event.
<b>KEB Govt. School, Raichur</b>	Headmaster along with 4 Govt. School students
<b>Number of Alumni present</b>	02
<b>Number of Media agency present</b>	30
<b>About Event</b>	<ul style="list-style-type: none"> <li>• Education on Wheels (EOW) event was organized on 7/7/2022 at Press Club, Raichur.</li> <li>• The event was inaugurated by the chief guest Shri. Nikhil B, IPS.</li> <li>• Dr. N Ramesh, Registrar explained the chief guest about the approach of REVA University towards improving the quality of education for underprivileged children through Education on Wheels. He also enlightened the unique features of EDUCATION ON WHEELS'</li> <li>• Mr. Raghunandan K given the demo of digital certification courses</li> </ul>

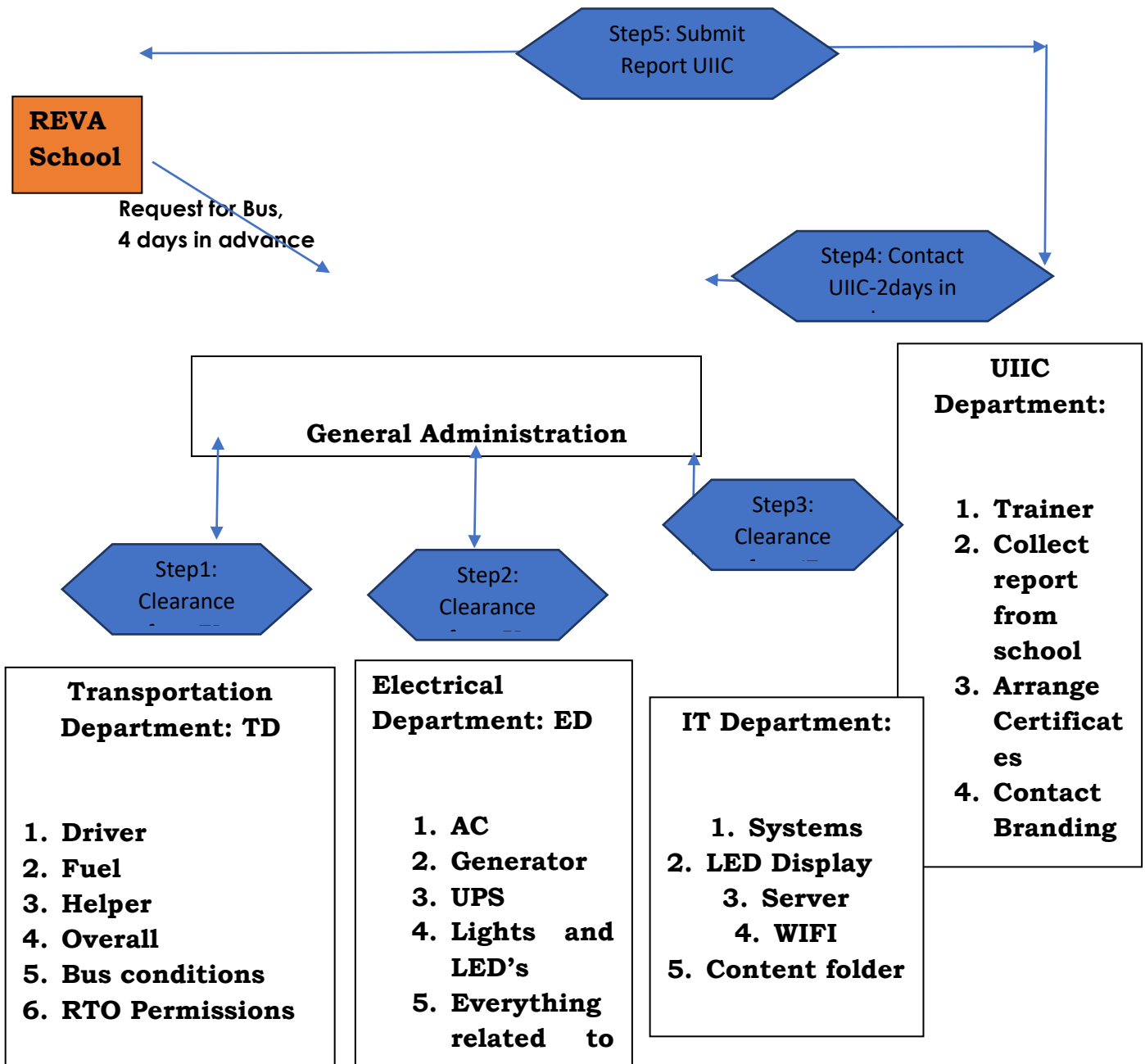
	<p>to the students of KEB Govt. school and to the chief guest</p> <ul style="list-style-type: none"> <li>• Shri. Nikhil Baddressing to media, talked about the importance of Digital literacy in current world and the beneficiaries have to take the advantage of this initiative from REVA University</li> <li>• Dr. N Ramesh addressed to media persons about the REVA University's noble initiatives such as Jagruthi, Adoption of Govt Schools and VanaMahotsava events and their consequential benefits to the society.</li> </ul>
<p><b>Outcome of the Event</b></p>	<ul style="list-style-type: none"> <li>• Shri. Nikhil Band media persons appreciated the noble initiative taken up by REVA University</li> <li>• The matter of Education on Wheels event got published in all the local newspapers and streamed across all the news channels</li> </ul>

**Photographs:**





**PROCESS FLOW CHART**






**June Month Calendar**

**June 2022**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Status
			1	2	3	4	
5	6	7	8 Civil- Marenahalli	9 Legal and AH SS- Sonnapanahalli	10 CSA- Postponed Arebinnamangala	11 Architecture- Postponed Jalige	
12	13	14 Mech Batteranamaranahalli	15 Civil- Marenahalli	16 Legal and AH SS- Sonnapanahalli	17 CSA- Postponed Arebinnamangala	18	
19	20	21 SAS - Postponed Huttanahalli	22 CIT- Postponed Mahadevakodigehalli	23 CIT- Postponed Mahadevakodigehalli	24 CSA- Arebinnamangala	25 ECE- Postponed	
26	27 CIT- Mahadevakodigehalli	28 Mech Batteranamaranahalli	29 EEE- Potponed Bandi kodigenahalli  ECE- Postponed Kattengenhalli	30 EEE-Postponed Bandi kodigenahalli			

**June Month Reports**

 <p><b>REVA UNIVERSITY</b> Bengaluru, India Established as per the section 2(f) of the UGC Act, 1956, Approved by AICTE, New Delhi</p> <p><b>Education on Wheels (EOW)</b></p>	
<b>Date</b>	<b>08/06/2022</b>
<b>Duration</b>	<b>10:00 AM to 3:30 PM</b>
<b>Venue</b>	<b>Government Higher Primary School, Marenahalli</b>
<b>Coordinator</b>	Mr.Raghunandan K
<b>REVA Student Trainers</b>	Varsha N Shree Varun H R Deepak Kamble Vivek

	Ritesh Bushiraj MS Madhushree V Keerthan Reddy Omkar
<b>Govt. Higher Primary School, Marenahalli</b>	Headmaster along with 4 teachers and 80 students from 1 <sup>st</sup> to 8 <sup>th</sup> Standard of Govt. Higher Primary School, Marenahalli
<b>About Event</b>	<ul style="list-style-type: none"> <li>• Education on Wheels (EOW) event was organized on 8/6/2022 at Government Higher Primary School, Marenahalli</li> <li>• Mr. Raghunandan K explained the teachers and kids of Govt. School about the approach of REVA University towards improving the quality of education for underprivileged children through Education on Wheels. He also enlightened the unique features of EDUCATION ON WHEELS'</li> <li>• REVA Student Trainers given the demo of basics of operating the computer and hands on training on Notepad</li> <li>• Distribution of certificates, pen, pencils and chocolates.</li> </ul>
<b>Outcome of the Event</b>	<ul style="list-style-type: none"> <li>• School kids learnt the basics and they realized the importance of computers in their day today life</li> </ul>

**Photographs:**














 Bengaluru, India Established as per the section 2(f) of the UGC Act, 1956, Approved by AICTE, New Delhi  <b>Education on Wheels (EOW)</b>	
<b>Date</b>	<b>15/06/2022</b>
<b>Duration</b>	<b>10:00 AM to 3:30 PM</b>
<b>Venue</b>	<b>Government Higher Primary School, Marenahalli</b>
<b>Coordinator</b>	Mr.Raghunandan K Dr. MeharBabuRavula
<b>REVA Student Trainers</b>	Ms. Bharti Hosmani Ms. Pallavi Kulkarni Mr. Pradhyumna S B Mr. Sanjay Akash M Mr. Shivkumar M Tuppad Mr. VineethShivkumar
<b>Govt. Higher Primary School, Marenahalli</b>	Headmaster along with 4 teachers and 84 students from 1 <sup>st</sup> to 8 <sup>th</sup> Standard of Govt. Higher Primary School, Marenahalli
<b>About Event</b>	<ul style="list-style-type: none"> <li>• Education on Wheels (EOW) event was organized on 15/6/2022 at Government Higher Primary School, Marenahalli</li> <li>• Session 1: Mr. Raghunandan Kand Dr.MeharBabuRavula conducted the FDP for GHP School teachers on Basics of Computer and Standard Operating Procedures of EoW</li> <li>• REVA Student Trainers trained the school kids on hands on painting using the computer</li> </ul>
<b>Outcome of the Event</b>	<ul style="list-style-type: none"> <li>• School teachers learnt how to use Powerpoint</li> <li>• School kids learnt the basics of MS Paint</li> </ul>

**Photographs:**

**Session 1: FDP**



Session 2: STP





