



**Impact Assessment on Provision of 5 E-Buggies to
Tirumala Tirupati Devasthanams, 3 RO Plants and 5
E-Buggies to Sri Venkateswara Institute of Medical
Sciences, Tirupati**



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Impact Assessment on Provision of 5 E-Buggies to Tirumala Tirupati Devasthanams, 3 RO Plants and 5 E-Buggies to Sri Venkateswara Institute of Medical Sciences, Tirupati

1. Background of the study

The Tirumala Tirupati Devasthanams (TTD) and Sri Venkateswara Institute of Medical Sciences (SVIMS) serve as pivotal institutions in the Andhra Pradesh, which is renowned for its religious significance, particularly the Tirumala temple, and for providing advanced medical care. Given the rising population and increasing footfall of pilgrims visiting the temple, there is a growing need for sustainable and efficient transport solutions within the temple precincts. This has led to the consideration of introducing electric buggies (E-Buggies) to facilitate the movement of devotees, elderly, and differently-abled individuals, enhancing their experience while reducing congestion and environmental impact.

In parallel, water quality and accessibility have become critical areas of concern, especially in heavily visited areas like Tirupati. With the increasing demand for potable water, the establishment of Reverse Osmosis (RO) plants has become essential to ensure that the local communities, including pilgrims and hospital patients, have access to safe drinking water.

The implementation of Reverse Osmosis (RO) plants for water purification and the introduction of E-Buggies (electric buggies for transportation) within a medical college campus and Tirupati devasthanams are initiatives aimed at improving health standards, ensuring sustainability, and enhancing mobility for devotees, patients, students and faculty. This study will help to assess the social, and economic impacts of these initiatives. These initiatives are allied with broader objectives of enhancing the sustainability practices of TTD and SVIMS while improving the quality of life for the local population and visitors alike.

2. Project Details

During the year 2022-23 KVB bank had approved a total Budget of Rs. 1,00,00,000/- (Rupees One Crore only) for providing support to various projects of TTD in & around Tirumala hills. Projects to which CSR support given were reducing the carbon footprints through green energy and also for providing clean drinking water.

Provision of 5 E-Buggies to Tirumala Tirupati Devasthanams

- TTD had planned to transform Tirumala into a green town and the administration has inducted electric vehicles into its transport fleet, besides undertaking green power

generation and other conservation activities. The initiative of providing battery/ electric operated vehicles is to reduce the carbon footprints at the hill and its surrounding location.

- In line with the same, Bank had handed over five numbers of Battery/Electric Operated Vehicles at a total cost of Rs. 29,26,875/- to TTD on 15.09.2022.



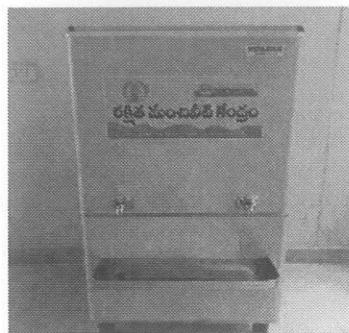
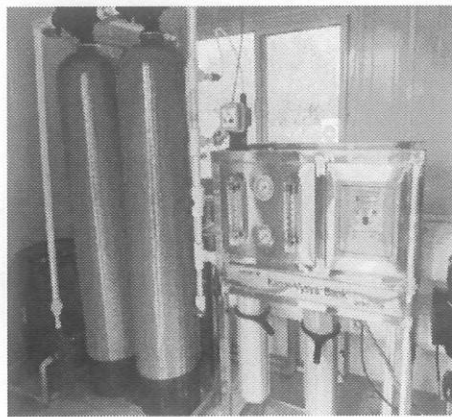
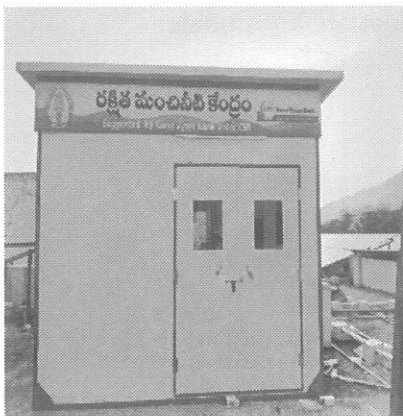
Provision of 3 RO Plants and 5 E-Buggies to Sri Venkateswara Institute of Medical Sciences, Tirupati

- SVIMS provides medical services to thousands of in-patients & OP cases on daily basis and the numbers were increasing considerably.
- To meet the increasing demands of patients, the institute requires additional facilities at their campus and the Hospital had requested the below support to meet the emerging needs of the patients.
- The total cost of these initiatives works out to Rs. 70,73,116/-

S.No	Particulars	No. of Units	Amount (in Rs.)
1	1000LPH RO Plant	2	30,80,788/-
2	2000LPH RO Plant	1	
3	Water dispenser unit	9	
4	11 Seater Electric Buggy	4	39,92,328/-
5	14 Seater Electric Buggy	1	



Electric Buggies provided at SVIMS



RO Plant and Water Dispenser units installed at SVIMS

3.Study details

The study focusses the sustainability and efficiency of services provided to both pilgrims and patients in the Tirupati region. These initiatives, aimed at improving mobility, water quality, and environmental sustainability, have wide-reaching implications that must be evaluated for their effectiveness, long-term benefits, and potential areas for improvement. This study will also

help understand the services provided and usage of electric vehicles into its transport fleet, besides how far it has increased cost savings including fuel cost reduction, maintenance savings under the impact of E-buggies at Tirupati Devasthanams and Sri Venkateswara Institute of Medical Sciences.

Objectives

- To assess the operational performance of the e-buggies, including their reliability, charging infrastructure, battery maintenance and integration into the transportation systems at TTD and SVIMS.
- To evaluate the benefits of RO plants in providing clean and safe drinking water.
- To assess the impact of E-Buggies on campus mobility, environmental sustainability, and overall student, patients and faculty satisfaction.
- To provide recommendations based on findings for future enhancements.

Impact Assessment Methodology

Data collection methods:

- Review of project documents and records
- Interviews with project staff, beneficiaries, and stakeholders
- Observations of project activities

Data analysis methods:

- Qualitative analysis of beneficiary feedback

Impact Assessment Tools:

a. Interviews:

- Key informant interviews with project staff and stakeholders: to gather information on the project's implementation, challenges, and successes.

b. Observations:

- Observations of project activities: to gather data on the project's implementation, including the quality of services provided and the interactions between project staff and beneficiaries.

c. Review of Project Documents:

- Review of project reports, proposals, and other documents: to gather data on the project's objectives, implementation, and outcomes.

d. Assess Impact using Indicators

Assess the impact of the projects on the identified indicators, including:

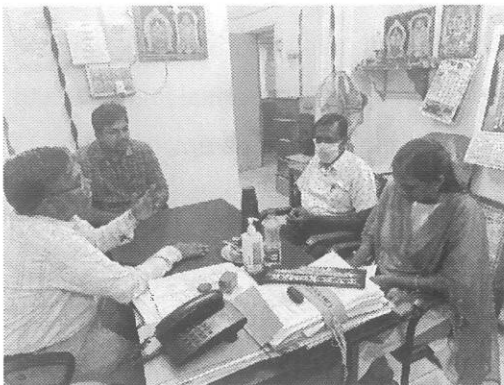
- Access to clean drinking water
- Transportation and mobility
- Accessibility and affordability
- Evaluate the effectiveness, efficiency, and sustainability of the projects.

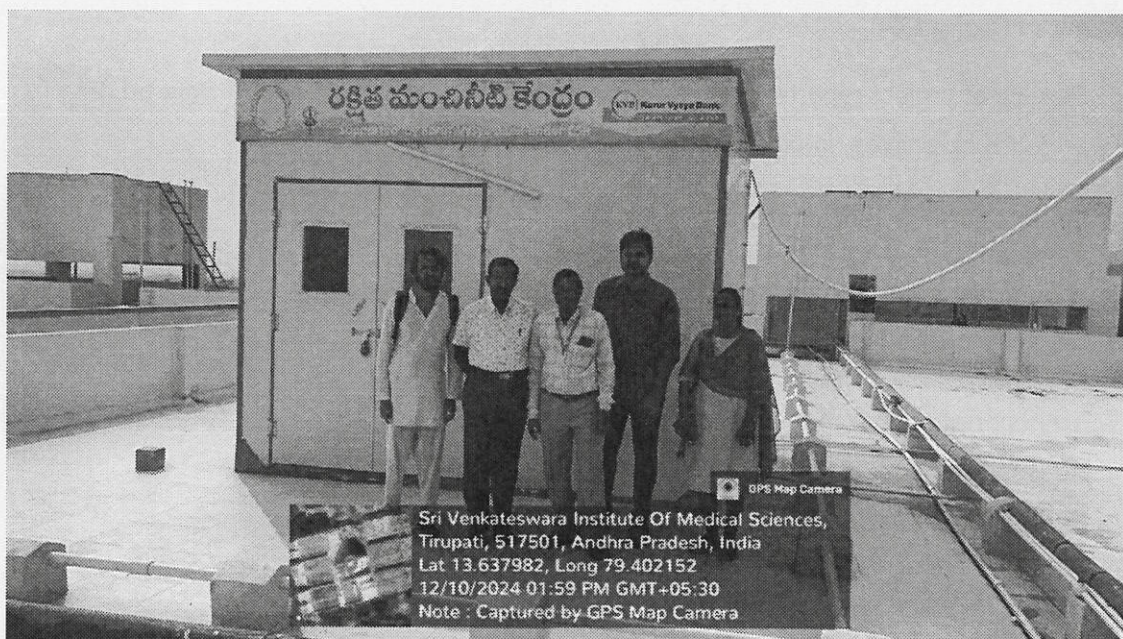
4. Impact Assessment Analysis

1. Sri Venkateswara Institute of Medical Sciences(SVIMS)

A. RO Plant

Reverse Osmosis (RO) technology has gained prominence in various sectors, particularly in healthcare and education. In medical colleges, the establishment of RO plants plays a critical role in ensuring the availability of clean, safe, and pure water, which is essential for multiple purposes, ranging from laboratory use to the hydration of students and staff.





Benefits of RO Plants and Dispensers in SVIMS

Under CSR of Karur Vaisya Bank (KVB) 3 RO plant has been provided with 2000 litre (1unit) and 1000 litre (2 unit) and 9 dispensers have been distributed to the hospital premises. RO plant of 1000 litres are placed in Girls hostel (MBBS block) and in outpatient block. RO plant of 2000 litre is placed in Inpatient block of the hospital.

The following outcomes came out with the discussion with the Plant Engineer, office staffs and students:

Purity of Water:

They expressed that RO plants effectively remove contaminants, including bacteria, viruses, heavy metals, and other impurities from water. Access to clean water is essential for the health of students, faculty, and staff and patients and promotes a healthier campus environment.

Interaction with students revealed that the water quality is good.

Dispensers

The dispensers provided at each floor and needed places help to access the quality water for all. Students use their water bottles to fill the water and use it in their rooms.

Impact on the Hospital Premises

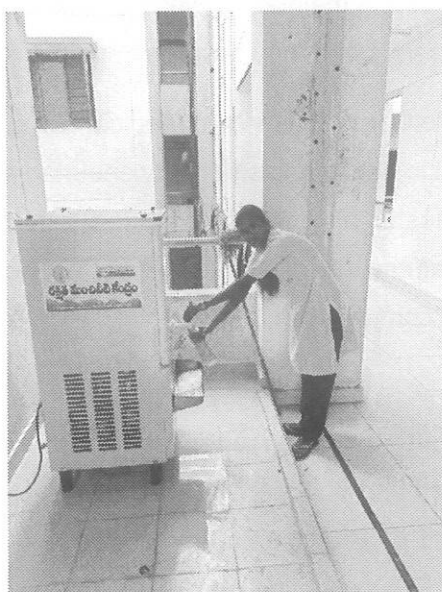
In SVIMS the Technical Engineer conveyed that the reduced TDS levels contribute to the efficiency of the hospital's infrastructure, including plumbing and water systems. He regularly monitors the water quality and record are maintained. This helps in preventing the scaling and corrosion of pipes and machinery, ensuring a longer lifespan for hospital equipment and

reducing maintenance costs. He expressed that the hospital staff also benefited from access to high-quality water for daily use, improving overall hygiene and wellness. The reduction of TDS levels not only ensures safe and high-quality water but also reduces the need for frequent maintenance of hospital water infrastructure, leading to overall cost savings in the long term.

Student Testimonials

During our visit, we have interacted with few students. The students shared the following feedback about the usage of the RO filter water and dispensers

- ❖ "RO helps us to have good quality water. We trust the water safety and able to consume it without any fear of affecting our health"



Student filling the water

- ❖ Another student enthusiastically shared (who is filling water in the picture), that "Having dispenser at every floor is very helpful. floor means that no matter where we are, we don't have to walk long distances to get water. It's quick and convenient, especially when we're running between classes, meetings, or study sessions. During night time. it is very helpful as we don't have to get down for water, it is available outside my room itself"
- ❖ Another student shared "During our class session, from our professors, we heard the risks of drinking untreated or impure water, so having an RO filter is very useful. We are seeing and what we learned in our classroom."

Cost-Effectiveness:

While the initial investment in RO technology can be significant, the long-term savings are

considerable. We were able to reduce the need to purchase bottled water and reduce wastage. Additionally, RO systems require minimal maintenance compared to traditional water purification methods.

Sustainability:

Medical colleges that implement RO plants contribute to sustainability efforts by reducing plastic waste associated with bottled water. During the discussions it came out well that usage of dispensers is more as it gives quality water. They stated that KVB have given well quality dispensers and RO plant where 9 dispensers are in usage in 6 floors. Earlier they had old RO plants which was failure due to local made. Furthermore, a well-designed RO system had incorporate energy-efficient technologies that minimize environmental impact in the hospital premises. Even TDS in water level is maintained which shows below 100. Service is also well provided from the particular agency and they have no compliances regarding it.

The implementation of Reverse Osmosis plants in medical colleges is more than just a facility upgrade; it is a vital investment in health and safety. By ensuring a consistent supply of purified water, these institutions can foster an environment conducive to learning and professional growth. In doing so, they reaffirm their commitment to the health and well-being of their students, faculty, and broader communities.

B. E-Buggies

Interaction with SVIMS Staffs/Drivers of Transport department:

While interviewing the 5 drivers and in charge of Battery Vehicle (Transport) of SVIMS they expressed that the provision of E- Buggies had supported a lot to the users in the hospital premises. Only KVB provided E-buggies are running without any problem. On a daily basis, between 500 to 800 people use the e-buggies for easy access around the hospital premises. This high usage reflects how essential the service is in providing convenience and accessibility to patients and their attendants. The hospital management has ensured that the e-buggies are well-organized by assigned drivers to each vehicle and maintaining a logbook for each vehicle. This ensures proper tracking of usage and helps in smooth coordination of services. The fleet includes 4 vehicles with 11 seats and 1 vehicle with 14 seats, providing varied capacity depending on the number of passengers. The 14-seater vehicle is seen as more beneficial, especially when it's used more frequently, as it can accommodate more people and ease mobility even during peak hours or busy times at the hospital. Some of the impacts shared by the team:

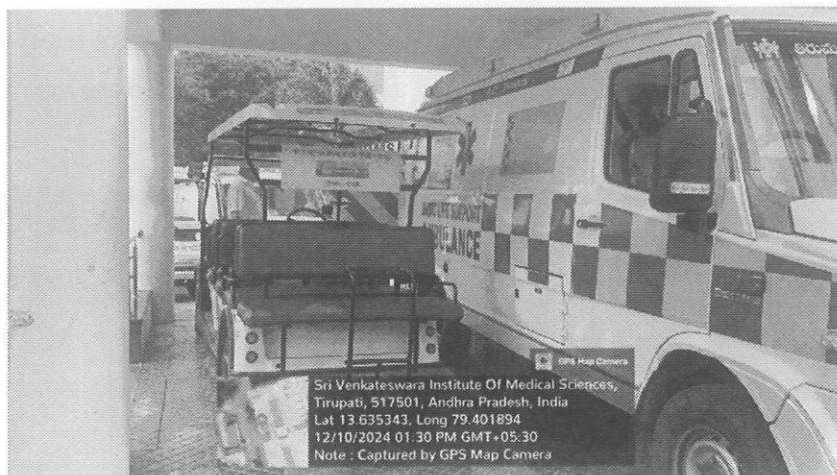
1. Improved Accessibility: E-buggies provide mobility solutions for elderly individuals, people with disabilities, or those recovering from surgery. They have significantly increased accessibility in large hospital complexes.

2. Reduced Physical Strain: For patients and visitors who may have difficulty walking long distances, e-buggies alleviate physical strain and reduce fatigue, allowing them to navigate large spaces more comfortably. They also stated auto usage and cost have been highly reduced as people avail e-buggies more.

3. Increased Efficiency: In hospitals, e-buggies had facilitated the quicker movement of patients, visitors, and even staff between departments, thus improving overall efficiency in patient care and management. From 9 am to 5 pm they continuously run the vehicle for easy accessibility.

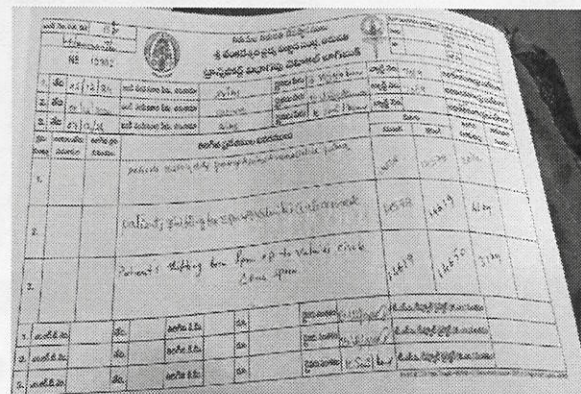
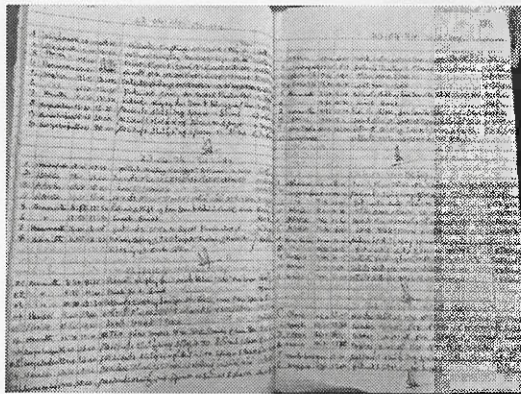
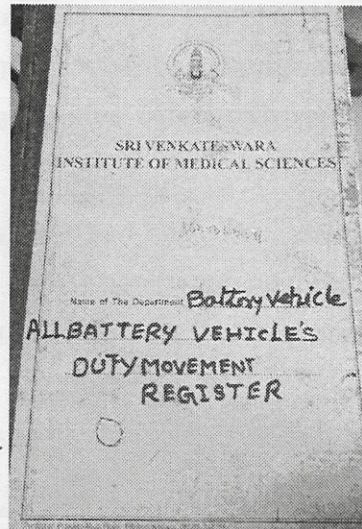


Interaction with Drivers Team

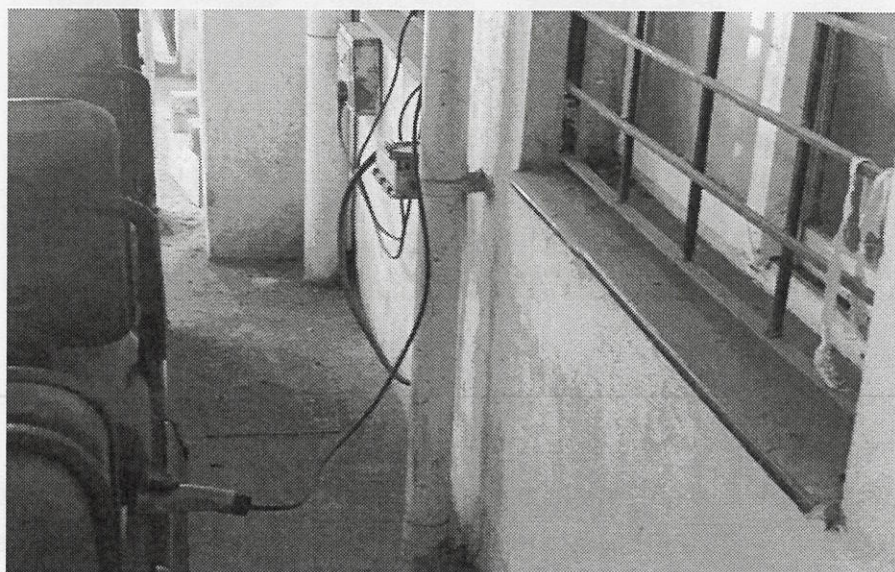


Maintenance

The Drivers team has easily adopted to using the E-buggies and also maintain proper record (log book) of the usage of the E-buggies by maintain the registers. The photos of the registers are provided below



Drivers are in charge for the maintenance of E – buggies and they ensure every night whether vehicles are properly charged and they see to that all vehicles are maintained properly.



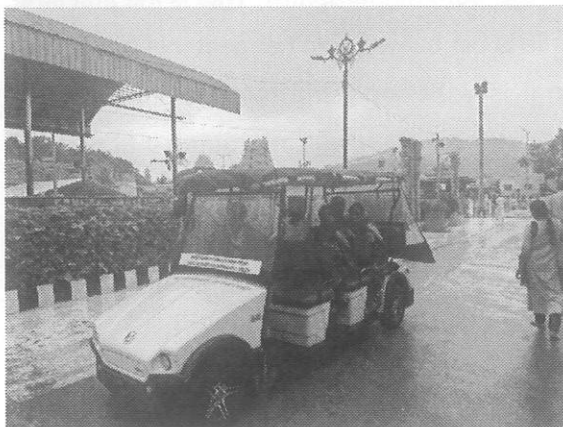
Charging point

Provision of 5 E-Buggies to Tirupati Devasthanam

In Tirupati Devasthanam we could visit the temple premises and could observe the usage of 5 E-buggies even during heavy rain. Other than we couldn't interview the transport management, vehicle driver or devotees. While interacting with the staffs of KVB branch, Tirupati, also expressed the same as Devasthanam is the bigger and lot of donations are received every day and lakhs of devotees are visiting, it is very difficult to get acknowledge for the Bank under CSR in providing the vehicle.

Some of the observations note during our visit:

- 1. Enhanced Visitor Comfort:** In places like temples, where visitors might spend considerable time walking or standing in queues, e-buggies can enhance the overall visitor experience, making it easier to enjoy the environment.
- 2. Environmental Benefits:** Since e-buggies are electric, they produce no emissions while in operation, helping to maintain cleaner air quality in public areas.
- 3. Reduced Congestion:** By providing an alternative mode of transport within premises, e-buggies can help reduce foot traffic congestion, particularly during peak visiting hours.



Testimonials

During the visit, the key feedbacks given by the users of E-buggies are as follows

1) At hospital

- ❖ Patient 1 (an elderly): shared that "This vehicle is very helpful to me. Because I couldn't walk for longer distance because of my age factor (i.e.) from entrance to the centre, which takes lot of time and my leg starts to pain. So I have to sit in-between, take rest and then walk. It takes more than 10 to 15 minutes before I reach inside. After these

e-buggies, when I arrive, they pick up and within 2 minutes they drop at the doctor and room itself. This helps to reduce my leg pain and comfortably come”

- ❖ Patient 2: shared, “Auto wala asks extra twenty to forty rupees to drop inside and sometimes they are not allowed inside also. For people like me these E-buggies, is helpful to reduce cost and also ease of travel within the hostel premise” Since these e-buggies are available during hospital hours, they make it very convenient for us to travel back and forth.
- ❖ Patient attender expressed that she regularly comes with her mother for heart related issues. E-buggies makes their travel easier at hospital premises. The e-buggies supports more during the rainy season by avoiding the discomfort and health risks of walking in the rain. Similarly, during extreme heat or sunny conditions, the e-buggies provide shade and protection, ensuring that the patients don't have to suffer harsh weather while traveling within the hospital.

2) At Temple

We interacted with one family who came for pilgrimage from Maharashtra. This is the first time of their visit. They shared, “We heard Tirupati temple is big but we didn't expect this much vast and travel within the premises and parking also it is very confusing for first time. They mentioned that navigating on foot was confusing, especially with walking routes that weren't very clear, making it difficult to get from one place to another. The family found the e-buggies to be a huge time-saver, allowing them to move around the temple premises quickly.

5.Recommendations

Key recommendations are

- Hospital E-buggies proven to be of good usage and also the driver teams is there to maintain for longer days. And proven to be good investment for visibility
- Their request is to provide higher seater to accompany more members
- For RO, the team has requested to provide the ones with longer service period as the membranes needs to changed regularly

The use of e-buggies in hospitals and temple premises presents several advantages cantered on improving accessibility, comfort, and efficiency. However, it also poses challenges that need to be addressed effectively through careful planning, user education, and ongoing maintenance considerations. Balancing the benefits with the potential issues will be essential for ensuring that e-buggies serve their intended purpose in enhancing mobility for all users.

A handwritten signature in black ink is written over a circular purple stamp. The stamp contains the text "The DHAN Academy" around the top edge and "Madurai" in the center, with a small star at the bottom. The signature is a cursive script that flows from left to right, partially obscuring the stamp.

The use of a plug-in to facilitate and simplify business processes is a common
on existing accessibility, control, and efficiency. However, it also poses challenges that
must be addressed effectively through careful planning, testing, and ongoing
maintenance considerations. Balancing the benefits with the potential issues will be essential
for ensuring that a plug-in serves their intended purpose in enhancing mobility for all users.

