



Transportation Management in Universitas Indonesia

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Abstract Transportation management is one of the supports for a green and healthy campus. The increasing number of campus population has an impact on the number of vehicles entering the campus environment. So that in order to reduce the number of incoming vehicles, transportation management in the Universitas Indonesia is needed. In addition to regulating the transportation system on campus, transportation management also regulates the prohibition of the UI Civitas Academica from bringing private vehicles into the campus environment. To limit the vehicles that enter the campus environment, UI takes strategic steps such as making policies, building support facilities and planning that have been prepared and will be explained in this paper. to reduce and limit vehicles in the campus environment One of the steps taken by the Universitas Indonesia is to provide Zero Emissions Vehicle (ZEV) transportation such as buses, bicycle, and scooters as a means of transportation that can be used for free by the UI Civitas Academica. To reduce and restrict private vehicles, UI is building a Highway Distribution to facilitate pedestrians, building a BORR (Bikers Outer Ring Road) lane for motorbikes, implementing a gate parking system at every entrance to the UI campus, In addition, UI also enforces various policies such as reducing the parking area, and prohibiting semester 1 and 2 students from bringing private vehicles into the campus environment, this is done by UI to reduce vehicles entering the UI campus..

Keyword:

Transportation management, transportation, Zero Vehicle Emissions, green campus

1. Introduction

The Universitas Indonesia has two campuses in Salemba (Jakarta) and Depok (West Java), the main campus is in Depok (West Java). The total area of the UI Depok campus is 3,019,421 square meters. This area is a place of activity for 47 thousand students, 8 thousand educational and educational staff and 17 faculties. In addition, the Universitas Indonesia has 6 large lakes, namely Kenanga Lake, Puspa Lake, Ulin Lake, Salam Lake. The lakes are taken from the acronym **KAMPUS** (CAMPUS). The total area of the six lakes is 269,104 square meters. The buildings at UI are designed as learning centers, laboratories / research centers,

activity centers, hospitals, and office buildings with many supporting structures for operations and maintenance. In addition, UI also has City Forrest with a total area of 780,091 square meters and other green land (Parks) with a total area of 803,537 square meters.

Since 2010, UI can be proud to call itself an important pioneer in making the Campus Green and Sustainable. The Universitas Indonesia has compiled various initiatives to create a green and sustainable campus, these initiatives are embodied in various policies and programs that can be carried out with full commitment by the civitas academica.

UI has a vision of a Green Campus, as a manifestation of a shift in the behavior of the campus community which describes the character of UI as open, sensitive and responsive, ready to serve the nation by responding to the challenges of the global climate. Therefore, transportation management is one of the most challenging aspects of campus management. In this paper, we explain the policies and objectives in managing UI transportation, Zero Emission Vehicle (ZEV) and reducing the use of private vehicles on campus. The two objectives are significantly related; However, each goal has a different approach to the design approach method and strategy in its implementation.

In the last five years, many developments have been carried out at UI, at least UI already has 10 newly built buildings. The number of students and staff will also increase with more than nearly 49,000 students in 2020. With the increasing population and new buildings, this also causes more and more vehicles to enter the campus environment of the Universitas Indonesia. based on 2019 data, the total number of vehicles that enter UI per day is 35,360 with a composition; motorcycles 77.66% or 27,459 and the number of cars 22.14% or 27,801. This has led to an increase in carbon footprint (CO₂) emissions at the UI Campus.

Transportation management affects the level of emission of cations and pollutants on campus. Transportation policies that limit the number of motorized vehicles on campus. In order to provide alternative transportation, efforts to reduce the number of private transportation and Zero Emission Vehicles (ZEV), Universitas Indonesia has several initiatives and transportation management policies. We will share UI experiences in transportation management and some of the initiatives used to reduce emissions.

2. Universitas Indonesia Transportation Management, Policies and Plans

Universitas Indonesia has planned a transportation system for the next 10 years, by looking at technological developments, study programs, the number of students, the number of lecturers and education staff. UI's long-term development plan and the Universitas Indonesia's established strategic plan. Transportation within the UI campus must provide support to UI residents to be able to choose a mode of transportation that is sustainable and environmentally friendly which leads to improving local air quality, health and the convenience of mobility of the UI Civitas Academica.

To reduce the number of vehicles entering the campus environment, transportation management is needed. To limit vehicles that enter the campus environment, one of the steps taken by the Universitas Indonesia is to provide Zero Emissions Vehicle (ZEV) transportation such as buses, bicylce, and scooters as a means transportation that can be used for free by the community. UI academicians. To reduce and limit private vehicles, UI built highway distribution to facilitate pedestrians, built BORR (Bikers Outer Ring Road) facilities for motorbikes, implemented a gate parking system at each campus entrance. In addition, UI also enforced various policies such as reduction parking lots, and prohibiting 1st and 2nd semester students from bringing private vehicles to the campus environment, this is done by UI to reduce vehicles entering the UI campus.

UI also collaborates with various parties to facilitate transportation to and from campus. Like PT. Transjakarta to facilitate the civitas academica from and outside the campus, DAMRI to facilitate the civitas academica from and to Soekarno Hatta airport, for transportation within an environmentally friendly campus environment, UI in collaboration with PT. GOWES in the supply of bicycles and scooters. This collaboration is a form of UI implementation to reduce the use of private vehicles on campus.

3. Universitas Indonesia Transportation Services and Facilities

Transportation at UI has provided support to the academic community to be able to choose a sustainable mode of transportation that leads to improving local air quality, health and ease of mobility for the UI academic community. In addition, this mode of transportation can reduce emissions, parking areas, coss facilities and greenhouse gas emissions.

To reduce private vehicles entering and facilitate public transportation users, the Universitas Indonesia provides several types of transportation that are environmentally friendly and can be enjoyed free of charge by the academic community. This transportation facility is expected to reduce vehicle emissions on campus, several types of environmentally friendly vehicles that are can be used by the UI Academic Community, including yellow bus services, yellow bikes, electric bicycles, and electric scooters. In addition, UI has also developed various electric vehicles for use on the UI campus, such as electric cars and electric buses. In addition to transportation facilities, UI also provides various other supporting facilities that can be used to reduce vehicles such as pedestrian roads and bicycle lanes. UI has a pedestrian length of about 15 km, and a bicycle path of about 10 km. This pathway can be used by all academicians and other communities.

3.1. Yellow Bus (Bus Kuning)

UI provides a yellow bus service for on-campus transportation that can be used by all academics and the general public. UI yellow bus service has 26 shalters that can be connected directly to public transportation outside the campus environment such as (busway, trains, etc.), this yellow bus is provided by UI to encourage academicians to use public transportation, and not use private vehicles to enter campus environment. This yellow bus service can be enjoyed for free by the UI academics and the general public around UI.

This yellow bus service operates every day, from Monday to Saturday, while on Sundays there is no service. Operational hours from Monday to Friday the yellow bus starts operating from the morning around 06.45 - 21.00 WIB, while on Saturday the yellow bus starts operating from the morning around 07.00 - 15.00 WIB



Figure 1. Yellow Bus

3.2. Yellow Bike and Scooter

The Universitas Indonesia provides emission-free vehicles for transportation within the campus environment such as bicycles and scooters that can be used by the civitas academica and the general public.

To provide facilities for academics and the general public around, UI collaborated with PT. Gowes. the vehicles provided are leisure bikes and electric bicycles. As for scooter services, UI provides electric scooters.

No	Transportation Type	Number
1	Yello Bike	220
2	Electric Scooter	214
3	Electric Bike	78
Total		512

Figure 2. Number of UI Zero Vehicles

This bicycle and scooter service can be used free of charge for all UI academicians. These bicycles and scooters are used as transportation between buildings on the UI campus. bicycle and scooter shalters are available at every faculty and other exciting activities on the Campus. Bicycles and scooters are equipped with IoT technology (Routes, shelters and available bicycles are clearly visible on the App, and bicycle areas can also be tracked for safety and security reasons).



Figure 3. Gowes Bike and Scooter

3.3. Pedestrians and Bicycle Track

Apart from providing transportation services, the Universitas Indonesia also provides user-friendly and comfortable pedestrian facilities (Higway pedestrian), and UI also provides special lanes for bicycles. The length of the UI Highway pedestrian is 1.3 Km while the bicycle track length is 10 Km. This facility connects all faculty buildings and other facilities / places of

interest on campus. The UI pedestrian path is also equipped with disability-friendly facilities and UI also provides special lanes for people with disabilities.



Figure 3. Pedestrian Highway

Figure 4. Bicycle Track

3.4. TransJakarta Bus (Busway)

To facilitate the transportation of academicians from and out of the UI campus, UI has collaborated in the transportation sector with PT. Transjakarta, this collaboration aims to provide door to door services for UI academicians from where they live to the faculty which is the goal of the Civitas Academica so that academicians no longer need to carry private vehicles into the campus environment.

The busway has various routes from and to UI, so that it can reach the area where UI academicians live, busway services within the UI campus are the same as the yellow bus service that stops at every shelter on the UI campus, this collaboration is not only intended to provide Transportation services alone, in addition to reducing vehicles entering the campus, also provide buses that are friendly to persons with disabilities.



Figure 5. Transjakarta Bus

3.5. DAMRI Bus

To facilitate UI academics from and to Soekarno Hatta airport, UI collaborated with DAMRI, a transportation company owned by a State-Owned Enterprise (BUMN).

It is hoped that this collaboration can reduce the use of private vehicles to and from

Soekarno Hatta Airport. DAMRI bus operating schedule is every day starting from the hour 03.00 - 22.00 WIB



Figure 6. DAMRI Bus

4. Universitas Indonesia Transportations Management Plans

Universitas Indonesia has planned various steps to reduce the number of incoming vehicles and reduce gas emissions in the campus environment. This plan applies to all road users on campus without exception, including for civitas academia. This management transportation plan regulates vehicles entering the UI environment, especially cars and motorbikes.

This transportation management plan is to achieve and support sustainable vehicle plans in the Universitas Indonesia campus environment. Universitas Indonesia has a target to reach zero carbon. Universitas Indonesia also targets no more motorized vehicles on campus and to switch uses zero emissions vehicles.

Currently, the transportation management plan within UI is to implement policies and programs to limit incoming vehicles. Several policies and programs are already applies. However, some are still in the review stage. This is a transportation management plan program that is being implemented at UI :

4.1. Vehicles IN-OUT Management System

To reduce vehicles entering the campus environment, UI implements a parking gate system for the campus environment. This system aims to minimize the number of vehicles entering and crossing the UI campus. As well as encouraging UI academics to use public transportation, such as Busway, KRL and others.

It is hoped that with this system, vehicles entering and crossing the UI campus will be reduced, because vehicles entering the campus will be charged a fee.



Figure 7. Vehicles IN-OUT Management System

4.2. BORR (Bikers Outer Ring Road)

Because based on 2018 data, the most number of vehicles entering and crossing UI are motorbikes, so to reduce motorbikes entering and crossing campus, UI built a special lane for motorbikes called BORR (Bikers Outer Ring Road), where the route It does not cross the UI inner ring path but passes through the UI outer ring path.

The construction of a special BORR motorbike lane is divided into 2 lanes, namely the south BORR and the north BORR. South BORR is 1.4 km long, while North BORR is 1.6 km long. This motorbike route can be used by academics and the general public for free, BOOR operating hours are from 07.00 - 22.00 WIB.

It is hoped that with the construction of a special motorbike lane. The number of motorbikes entering and crossing the UI campus will decrease, thereby reducing gas emissions within the UI campus.



Figure 7. South BORR



Figure 8. North BORR

5. Policy For Use, Restriction And Reduction Of Private Vehicles

To reduce and limit private vehicles that enter the campus environment, UI has issued several policies including the following:

1. The Universitas Indonesia issued a ban for semester 1 and 2 students from using private vehicles into the UI campus environment
2. Universitas Indonesia Issued a policy to reduce parking areas in the UI campus
3. Universitas Indonesia issued a policy to use zero emission vehicles

6. Summary/ Concluding Remarks

To reach and have sustainable transportation on campus, good transportation management is needed. Sustainable transportation is one of the requirements for a green campus. Transportation management is also needed to create a healthy environment free from carbon gases and emissions.

Significant progress in reducing vehicles entering the campus environment. From the policies implemented, planning and facilities provided to support the policies. All of these things are in the transportation management that has been designed by UI.

The problem of the number of vehicles entering is a serious problem for UI. So some plans have been prepared by UI to be able to reduce the use of private vehicles and restrictions on vehicles entering the campus environment. This transportation plan and management is important to create a healthy and sustainable UI campus environment for UI Civitas Academia.

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