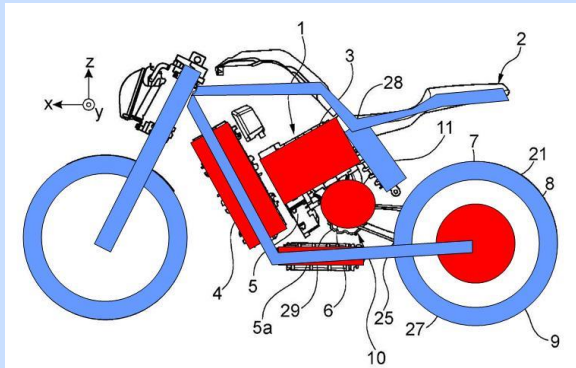
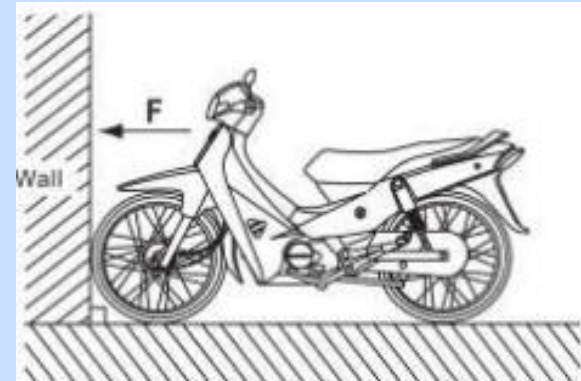


# MALAYSIAN E2/3W MANUFACTURERS

United Nations Environment Program



**MFGRS & VOLUME  
LOCAL vs CKD  
OBSTACLES**



Prof. Dr. Horizon Gitano

Rev 2



# Malaysian Electric 2-Wheeler Companies

<u>COMPANY</u>	<u>VEHICLES</u>	<u>CONTENT</u>	<u>MARKET</u>
<b>Voltron</b>	E-Bikes/Scooters	Local/China	Global
<b>Eclimo</b>	E-Moto	Local/China	Domestic
<b>Roda Presetasi</b>	E-Moto	Local/China	Domestic
TreeLektrik	E-Moto	China CKD	ASEAN
Blue Shark	E-Moto (Battery Swap)	China CBU	ASEAN
TailG	E-Moto	China CBU	Global
Legatus	E-Moto	Local/China	ASEAN
Zesparii	E-Moto	China CBU	Domestic

**Only first three are really “Malaysian” manufacturers.**

Only Voltron shipping in volume (100,000) because exporting.

Even local manufacturers trend towards more china components especially at low volumes

# Sample of Malaysian E2 Wheelers

## Voltron



Model: Tour  
Speed: 25kph  
Range: 50km (25kph)  
Price: 500 USD

## RodaPrestasi



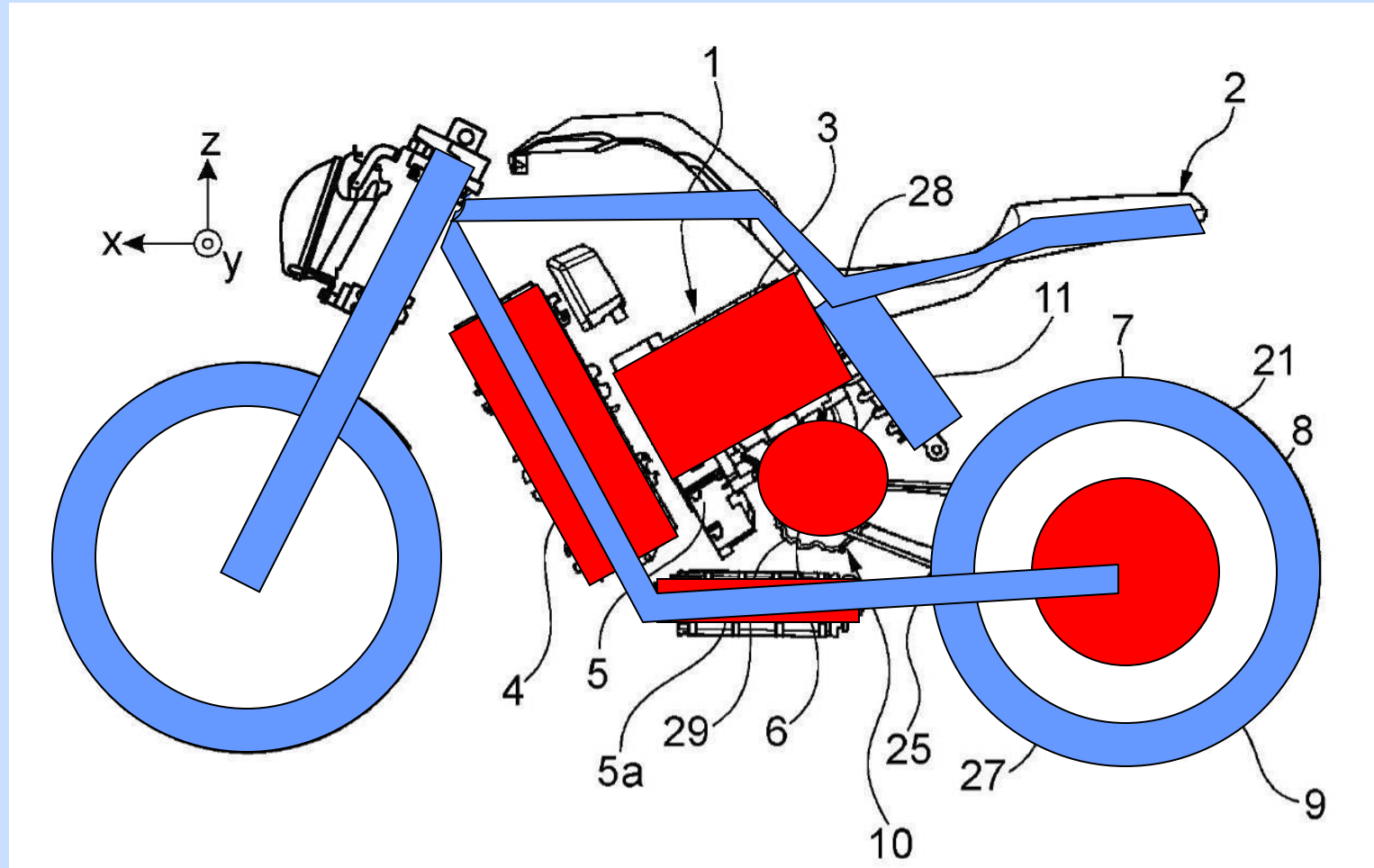
Model: Boss 2000  
Speed: 55kph  
Range: 775km  
Price: 700 USD

## Eclimo



Model: ES-11  
Speed: 100kph  
Range: 100km (50kph)  
Price: 3,000 USD

# LOCAL MANUFACTURE: LOCAL VS CHINA CONTENT



## TYPICALLY LOCAL

Tires  
Rims  
Brakes  
Frame  
Seat  
Shocks

## TYPICALLY FROM CHINA

Motor  
DC-DC  
Charger  
Wiring Harness  
Controller

# MAJOR OBSTACLES TO E2W PROLIFERATION

**Manufacturers complain that locally made E-2W's have a hard time competing because:**

Chinese competition is too cheap:

High Volume

Low quality

Not standard compliant

Illegally imported

*NOTE: This is Not China Bashing! China makes some excellent products, but the "low end" E2W's being bought in SE Asia are often very low quality.*

## **COST VS VOLUME**

At volumes of 100 bikes a local frame costs 250 USD

Investment of 250,000 USD can bring this down to 100 USD

This would require volumes of 10,000 units which local manufacturers can't get, so they import China parts

# Customs: Occasional “contraband” confiscation

Kastam rampas 265 basikal elektrik seludup dari China

Mei 2023



# Difficulty of Enforcement

## E-BIKE LUXURY SERIES

Luxury Series is AZ E-BIKE's original electric bicycle, assembled with high-quality parts. It is an absolute high-quality, high-configuration, high-end product. It is your best choice.



With “online sales” it is difficult for the government to keep up on Vehicle Type Approval Compliance

Imported under MS2514 (Bicycle, <25kph), but...

Specification is 40kph (Scooter)



Motor	1000w
Battery	48v22a
Max Speed	30-40km/h
Range per Full Charge	50-60km
Charging Time	2-8 Hours
Loading Weight	250kg
Brake	Disc
Tyre	Tubel
Size	170cm x 45cm x 100cm
Weight	100kg

WhatsApp us

# Difficult to compete with China “non-compliant” product



Model: LEM R2  
Speed: 65kph  
Range: (est. 37km)  
Battery: 50V-20Ah  
Price: 424 USD



Model: Boss 2000  
Speed: 55kph  
Range: 75km  
Battery: 50V-30Ah  
Price: 700 USD

Manufacturers can “lie” by stating their range on low-speed drive cycles.

Data at right from old Eclimo bike:

<u>DRIVE CYCLE</u>	<u>RANGE (km)</u>
30kph	150.5
ECER40	115.7
50kph	102.7
WMTC2-1	84.5

+80%!



# Three-Wheelers have historically forbidden in M'sia



There are at several “niches” for E3Ws:

- Mothers with small children
- Agricultural Work
- Disabled people
- Parcel Delivery
- Tourism



**10% truck replacement by 2040 reduces road emissions  
by 5.3% CO2 by 2050**

# MANUFACTURER COMPLAINT: Lack of Charging

Currently there are **NO** public charging points

## ADD CHARGING POINTS:

Transport hubs

*Encourage 1<sup>st</sup>/last mile use*

Government Buildings

Masjid

Flats



Weatherproof "G" plug  
is sufficient for small  
E2/3W charging

Tear up the VIP parking at government buildings, and convert it to "VIB40" Parking for bicycles, E-Scooters and etc.

# MANUFACTURERS GENERAL RECOMMENDATIONS

**Cost vs. Range makes EVs tough sell (bigger tank is cheap, bigger battery is expensive)**

Consumer mindset needs to change to accept lower range EVs

**Tax breaks are a “weak” incentive, prefer subsidy**  
(of course)

**Fuel Subsidies distort the field in favor of less efficient vehicles.** This needs to be reversed:

*Subsidize EFFICIENT technologies, not obsolete ones!*

**Battery Swapping/Renting as a service**

Likely to be market driven, just beginning in Malaysia now

# MANUFACTURERS “VOLUME” FALLACY

Domestic manufacturers are focused on producing “high end” E-motorcycles as they believe there are more profits to be made, and this is the “big” market (equating it with the conventional motorcycle market)

***This is a FALLACY because:***

E-motorcycle can't compete with the power/range of ICE bikes at a reasonable price

The “volume” E2W is the E-scooters, BUT they have stiff competition from China

Until standards and importation taxes are imposed, OR the fuel price increases, OR batteries suddenly become cheap this won't change.

# POLICY RECOMMENDATIONS: ASEAN Integration

**10 “little” countries** working against each other will always lose to the **ONE BIG COUNTRY** over their shoulder!

***WE NEED an Inter-ASEAN E2W program using components from ASEAN countries:***

Tires from Vietnam, Controllers from Malaysia, Frames from Thailand, Harness from Philippians, Breaks from Cambodia, Seats from Lao...

## ***HARMONIZED ASEAN STANDARDS***

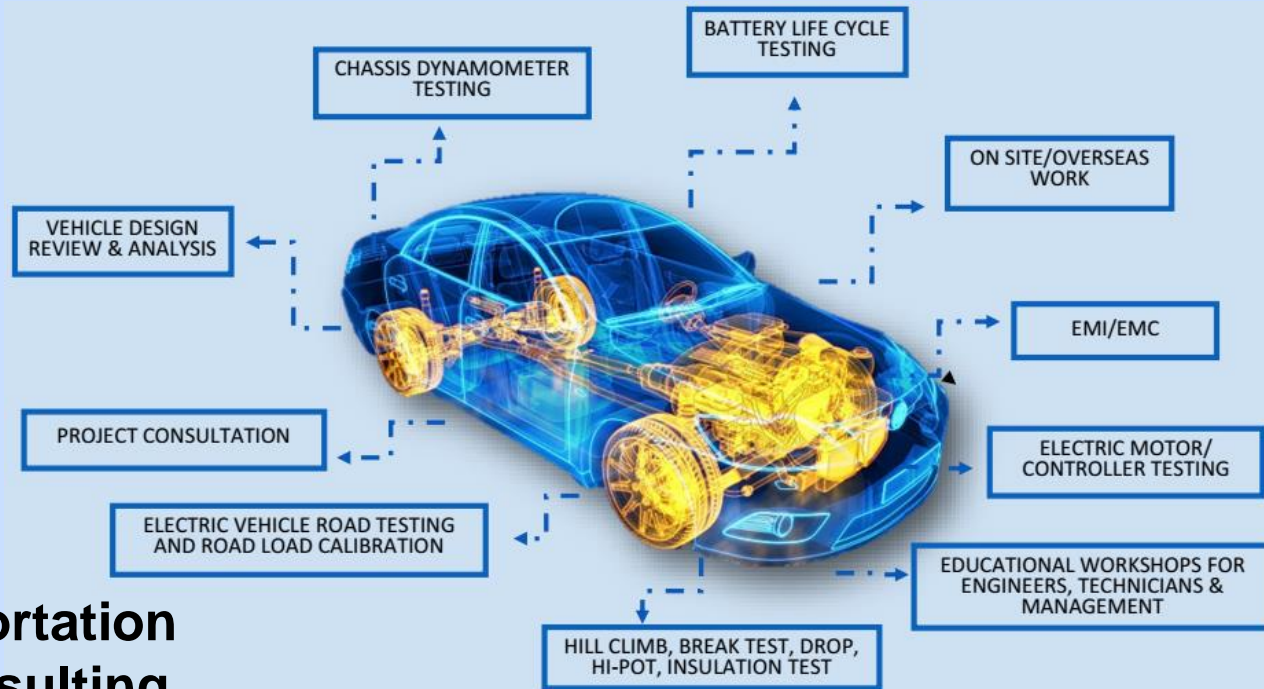
So that any ASEAN E2W is accepted in all ASEAN countries

- Lower overall Cost
- Spread around the profit
- Increase the market size

Collectively impose tariff barrier on “Non-ASEAN” products

# THIS IS NOT THE END!

This work is ongoing and scheduled to finish ~Sept 2023



**Technical Training  
Vehicle and Transportation  
System Consulting**

**Focus Applied Technologies  
Electric Vehicle Test Center (EVTC)  
Dr. Horizon Gitano-Briggs (CTO)**

[HorizonUSM@yahoo.com](mailto:HorizonUSM@yahoo.com)

+(6016) 484-6524

[www.FocusAppliedTechnologies.com](http://www.FocusAppliedTechnologies.com)

