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SUSTAINABLE DEVELOPMENT OF VIETNAM TRANSPORT BY CRITERIA 3P

Ly Huy Tuan, Nguyen Manh Hung² and Hoang Thi Hong Le¹

Vietnam UTT

ABSTRACT

At the beginning, the paper states the need for research: up to now, sustainable development of transport has always played an important role in the national economy because transport contributes to production, export, import, distribution and circulation of goods; meet mobility needs; freight and passenger transport services. Next, the paper summarizes the methodology, research methods and analysis on sustainable development of the whole sector, according to the sub-sectors of transport in the world and in Vietnam. The paper also introduces the main results of sustainable development research with the following contents: analysis and evaluation of criteria and norms of the whole sector, 5 sub-sectors and 3 transport fields, which have been carried out since so far, according to aspects, specific criteria, and norms selected and proposed by the authors. The paper also introduces some concepts; analyzes and evaluates through a systematic approach and analyzes, synthesizes and compares; mentioned two elements of the SWOT matrix as opportunities and challenges, difficulties of sustainable transport development in Vietnam. At the end, the paper proposes some solutions on specific criteria, system of norms and coordination, integration of sustainable development of the entire transport sector, according to sub-sectors and fields: transport infrastructure; transport services and transport industry; propose a number of solutions to serve the transport sustainable development and turn Vietnam into an industrialized country towards modernity by 2030 and the next years.

KEYWORDS: Sustainable development, according to criteria 3P, sustainable development of transport under 3P criteria.

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1. INTRODUCTION

Urgency of research: In foreign countries, there have been many research works on sustainable development [1-6,25,26], but not many studies on sustainable development by criteria 3P. According to Dr. Prof. Harry Geerlings [4], the sustainable criteria P1 for people include 6 specific criteria: equity; human health; education; community; quality of life; public participation.

Sustainable criteria P2 for planet includes 7 specific criteria: pollution presentation; climate protection; biodiversity; precautionary action; avoidance of irreversity; habitat preservation; aesthetics. The sustainable criteria P3 for profit includes 7 specific criteria: affordability; resource efficiency; cost internalization; trade and business activity; employment; productivity; tax burden. In 1994, Prof.Dr. John [5] coined the term triple bottom line. He reflects on what got him to that point, what has happened since- and where the agenda may now be headed.

In the EU, China, Slovenia, and France, there are also studies on sustainable development, but according to different aspects and criteria. In the EU, for example, author [2] presents a truly integrated transport system for efficient and sustainable logistics based on an open and global system of transport and logistics assets, hubs, resources and services are operated (within an open environment and frameworks) by individual companies. They are completely visible and accessible to market participants, thus creating a network of logistics networks. Coordination of logistics, transport, infrastructure and supply networks for the purpose of mobility, storing, delivering, and using physical objects around the world in terms of economic efficiency, environment and society, safe and sustainable. The system will be based on physical, digital and operational connectivity, enabled through modularization and standardization of interfaces and protocols.

Integrated model [25] on organization, operation and barriers of urban passenger transport service integration including: legal and institutional, financial, political & cultural, technological and practical implement and propose a 5-step action sequence: diagnose and evaluate the current state of the public transport system; concept of multi-criteria evaluation as a matter of placement of variations; review and evaluate multi-criteria methods; ranking and summarizing computational experiments.

The purpose of the paper [26] is to promote the integration of urban and rural transport in order to enhance the effective delivery of public services for urban and rural transport, and promote the integration of infrastructure, passenger transport services, freight logistics services, and strives to create an integrated development environment for urban and rural transport, and then achieve urban-rural synergies and resource sharing. Thereby, calculating the relative importance of a factor at a certain level compared to an element at a higher level, the maximum Eigen value and the Eigen vector of the judgment matrix will be obtained. Therefore, around four aspects of integration are infrastructure construction, urban-rural passenger transport services, freight logistics services integration and urban-rural traffic management integration. In the article, through expert opinion by questionnaire, the author has given the judgment matrix, the consistency check of the judgment matrix is carried out and the relative importance of a factor is calculated, given a certain level relative to an element of a higher level, the maximum eigen value and eigen vector of the judgment matrix will be obtained. Next, a fuzzy comprehensive assessment model is introduced, assessing the acceptability of experts for the integrated development level assessment index, assessing the level of urban-rural transport integration development.

In Vietnam: the current transport network is still weak, mainly developing in extensively: there are just over 1,000 km of expressways; has built gateway, international transshipment port but has not been exploited according to design capacity; no high-speed/express railway, no rail-ways has

electric locomotives; no airport has reached 4F level according to ICAO standards. Transport has not developed sustainably; or sustainable development in the direction of coordination and integration. Resources for the sustainable development of infrastructures have not been provided sufficiently, timely and synchronously; lack of both investment capital and management and maintenance of transport infrastructure, especially in railway, IWT and aviation sub-sectors. Pollution caused by transportation activities accounts for a relatively high proportion (~30%) due to the use of fossil fuels. Sustainable development is mentioned in policy research and planning but has not been put into practice for different reasons. Co-operation, coordination and integration for sustainable development in transport infrastructure; transport services, multimodal transport; and the transport industry field has not received much attention, both in the formulation and implementation of policies and plans and in application in a number of projects and works. In the whole sector, sub-sectors or fields of transport, there have been a number of studies on sustainable development according to 3 aspects/criteria: economy, social and environment; 4 aspects include: economy and development; social; land and environment; culture and heritage; and 5 aspects: economic, social, environmental, financial and management/institutional criteria.

In the country, the paper by Assoc.Dr.Hai [7]: only mentions sustainable development in urban transport planning and has 55 norms: in economic terms, there are 18 norms such as: 5 on traffic density, 3 on means of transport, 3 on modernity and comfort, 3 on efficiency, 3 on land use, 1 on system finance. Regarding social, there are 13 norms: 7 on accessibility and social justice in traffic, 2 on traffic congestion, 4 on traffic accidents. Regarding the environment, there are 24 norms: 7 on air quality, 7 on quality of motor vehicles, 1 on vehicles fitted with compression engines, 1 on the proportion of vehicles meeting the latest emission standards to total vehicles; 7 on vehicle noise levels when parked, 1 on the ratio of vehicles meeting the latest noise to total vehicle standards. Some criteria are already in the technical standards of the infrastructure, means of transport and the paper only mentions the criteria, and norms in the Hanoi transport development planning, lacking the criteria on the development of the general transport infrastructure. In addition, the paper has not assessed the current status of the achieved level according to the criteria, to what extent (%) but only introduced the norms to be achieved, and to many norms.

The author of paper [21], the general criteria are according to 5 criteria: on economy of transport infrastructure has 4; on social has 5, on environmental has 2, on financial has 2, on management has 3 norms. Regarding transport services: general economic norms has 4, social has 6, environmental has 2, financial has 2, management has 2 norms. Specific criteria: Economic on transport infrastructure has 4 specific criteria with 4 norms on quantity, 2 norms on co-operation; 10 norms for each sub-sector and specialty; on social 1 specific criteria with 5 norms; on the environment has 2 specific criteria with 4 norms; on finance 2 specific criteria with 3 norms; on management, there are 2 specific criteria with 3 norms. According to paper [21,22]: there are criteria and norms for general transport development, by sub-sectors and fields to 3, 4, 5 criteria but not according to 3P criteria and there are some specific criteria, norms are different from the 3P criteria or already are in the technical standards.

Dang Trung THANH's doctoral thesis [19]: states three economic, social and environmental criteria, but only norms for sustainable development of transport infrastructure for one territory of

Vietnam-the Mekong Delta region. Similarly, Vitranss 2,3 [10,11] mention 5 economic, social, environmental, financial, institutional/management criteria but specific criteria and norms have not been introduced clearly. The research project for two years 2021-2022 of the Vietnam Institute of Economics [26] headed by Nguyen Dinh Hoa is based on 3 criteria/pillars with economic criteria including 4 norms: freight transport, passenger transport, number of enterprises and transport costs of enterprises. In terms of society, there are 4 norms including: multidimensional poverty reducing, access to education, to health care and traffic accidents; on natural resources and environment, including one norm is CO₂ emission. The study also introduces the relationship between infrastructure and norms in a positive or negative direction, for example for transport services, the relationship is positive, but for transport costs at enterprises is the negative relationship with the hypothesis: are other norms that are fixed when one norm changes.

Research work of Ha Thanh TUNG (2023) [23] integrated solutions for urban public passenger transport, applications in Hanoi: overview of integration as classified by time has 4 stages: planning, design, operation, investing in upgrading and renovating. According to the integrated content including 7: route network integration, infrastructure, information and operation charts, tickets and fares, regulatory agency by modal function, transport and land use, transport and environment. And according to levels, including 3: spatial integration (infrastructure, routes, etc.), functions (information, tickets, and functions of city trips) and management organization (management agencies, policies) development, implementation mechanism, management and supervision, financial allocation). The work also proposes a specific application in the case of Hanoi, including principles and integrated content on route network, transit points, services, ticket system and integration of management organization.

The authors at the Ministry of Construction and PPJ consulting use 4 criteria [8] including: economy and development; society; land use and environment; culture and heritage. Regarding the interdisciplinary issue mentioned in book [28], it is mainly the integration between the transport infrastructure and the environment; in the study [1] is between transport strategy and urban land use. These are key issues in the sustainable development of transport policies of the country.

Some of the above-mentioned norms can be called specific criteria because they are quite comprehensive, some additional norms can be added in Vietnam and will be introduced in detail in the following section.

Thus, both in the world and in Vietnam, the approach according to 3, 4 or 5 aspects/criteria of sustainable development is applied with many specific criteria and set of norms; combined with traditional research methods in order to express the content and achieve the research objectives set out. However, the content of criteria, norms and quantity are still very different, especially specific criteria and set of norms, depending on the specific conditions of each country and it is difficult to apply the norms of this country use in other countries.

The gap of previous studies: studies in foreign countries, the criteria mentioned are still general, specific criteria have not been stated, the performance norms system and method of determination; many criteria and norms are not suitable for Vietnam's conditions due to different levels of

economic development (national GDP), standard of living (GDP percapita); policies, planning, legal documents...on sustainable development of transport are also different, so they cannot be applied mechanically to Vietnam. There are quite a few works that delve into the integrated content or state the detailed content such as: integration objectives; what are the issues of integration: what is the integrated content, how to integrate; integrating organizations and activities of any organization together; integrated level, space, time. Most have talked a lot about the mechanism of co-operation, coordination, and integration of sectors, sub-sectors, especially between transport development policy and land use, and environment, but in reality there are still many obstacles in many countries, in which there is Vietnam.

Based on the overview of the sustainable development of transport in Vietnam over the past time, there has been no research on the sustainable development of transport in Vietnam according to the 3P aspects/criteria. Although there are many specific criteria and norms for sustainable development, some are already in the technical standards of infrastructure and means of transport, and only a few norms have been included in the policies, planning and programs of sustainable transport development; most of them just stop at theoretical research, have not been put into practice, if there is only a co-operation/connection between sub-sectors. Therefore, it is necessary to have research to provide specific criteria and norms for sustainable development of the whole transport sector, 5 sub-sectors and 3 transport fields according to 3Ps in order to advise and help policy makers and develop regulations, transport planning, helping the government and the Vietnam Ministry of Transport to come up with practical and feasible solutions. That is the novelty of this paper.

The objective of the paper is to provide three aspects, some specific criteria and set of norms for sustainable development in terms of people, planet, profit and co-operation, coordination, and integration horizontally and vertically; and mixed integrated system of norms that criteria, especially in terms of policies and institutions to help policy, strategy makers, and planer the construction of Vietnam's transport sector to develop in a sustainable orientation; in the near future is to meet the demand for transport with increasing quality. In the medium and long term, it is to satisfy the demand for transport infrastructure and transport services with regional, international quality, contributing to the sustainable economic development of the country.

The main contribution of the paper is to select the aspect/criteria including people, planet and profit-3P with a set of norms for each specific criterion. This is the first time in Vietnam, the author introduces this norms system after selecting sustainable development criteria according to 3P, adjusting the title of specific criteria, and proposing a system of norms for the whole sector and each sub-sector; and infields of the transport infrastructure, transport services (including transport auxiliary/supporting services) and the transport industry such as manufacturing, assembling and repairing means of transport, which till now have not been introduced under the 3Ps in Vietnam.

The approaches implemented: follow the traditional methodologies and methods such as: analysis, synthesis; qualitative and quantitative, modeling; statistics, comparison; system approach; according to 3,4 or 5 aspects/criteria, many specific criteria, system of norms of sustainable development. Using the above-mentioned approach, the research has set out criteria suitable for the

specific conditions of the country and provinces, cities. However, research may be appropriate for one country but not for another; suitable at this stage but not at a later stage and need to be supplemented and corrected. That is not to mention the novelty of this research: a study after certain years (eg.5-10 years) has changed, especially in the period of rapid transformation of science and technology and the current world economic environment. Therefore, this study is needed, especially since the Vietnamese economy has just escaped from the low-income state, is undergoing a strong transformation in a positive direction, and has a relatively high, stable growth rate, even in the developing world, epidemics and disruptions to supply chains, instability and crises in some regions of the world.

2. METHODOLOGY, RESEARCH METHODS

In this paper, the traditional approaches and research methods for sustainable development of transport in terms of 3P aspects/criteria and specific criteria, system of norms are used according to the approach of people, planet, and profit. The paper also follows the principles of systematicness, scientificity, objectivity, concise applicability, operability, the above mentioned methodology, methods; and with a system of evaluation norms in each criteria/approach for the development level of national transport integration, and is presented in figure 1.

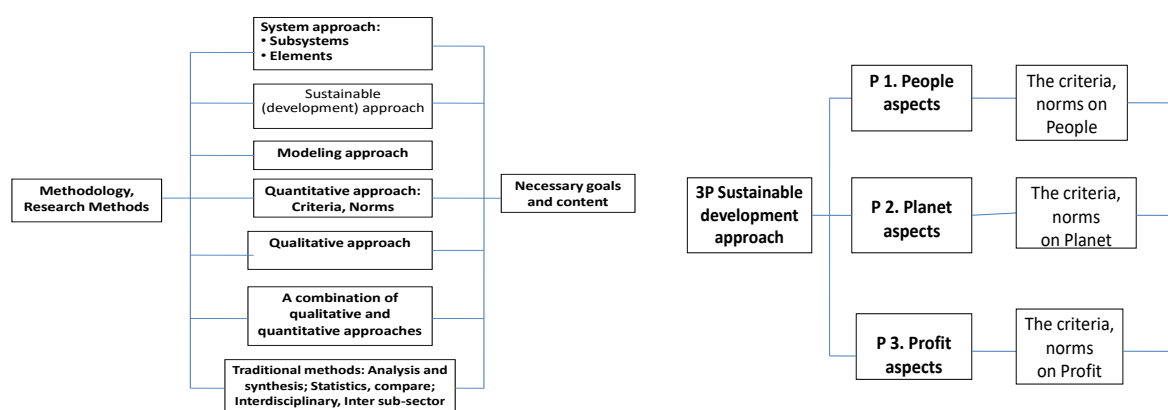


Figure 1.a Sustainable approach methodology **Figure 1.b** Sustainable approach according to 3P

The approach shown in figure 1 is a combination of 3P criteria with system approaches, modeling and traditional universal methods that are suitable for research on sustainable transport development in order to achieve the objectives and content proposed research. Although the methodology, methods have been used by many people, but: i) there is no research in Vietnam according to 3P; ii) previous research works are few; and iii) there are many norms, so has not been focused, or no highlight point; iv) the content of specific criteria, system of norms, units or calculation has not been clearly stated; v) there is no link between specific criteria and the system of norms used.

3. MAIN RESEARCH RESULTS

3.1 Some concepts

Infrastructure co-operation is the interconnection of communities, economies or regions/countries through network: transportation, communication, energy, water and it boasts of a super special capacity: the ability to catalyze infrastructure development. As a result, infrastructure co-operation

has emerged as a key priority for policymakers and practitioners worldwide, including the countries of G20 [3].

Transport infrastructure co-operation is a connection between two types/modes of transport infrastructure through a transit point, modal conversion or means of a trip/shipment with at least two or more modes of transport. There is a connection between hardware and software transport infrastructure (Policies and institutions are organizations, apparatus, and people).

Transport infrastructure coordination is a transport infrastructure connection but with coordination (direct or indirect intervention), especially at the points of goods transshipment, modal change or transfer of passengers, goods, and by policies and management tools. Similar to connection, there are hardware coordination (Infrastructure) and software coordination (Policies, institutions). Thus, the transport infrastructure coordination is a higher level than the infrastructure connection but has the influence and regulation of management agencies and organizations.

There are many types of coordination, for example by management level there are: Macro and micro coordination; domestic and international coordination. By nature there are: i) hardware coordination; ii) software coordination; iii) mixed coordination. In the direction there are: vertical (bottom up, top down), horizontal and cross coordination (mixed and matrix). According to the relationship, there are: spatial coordination (country, region, province...), sectoral/specialized coordination and mixed coordination, for example coordination between transport and land use, and environment...

Transport integration is a higher level of coordination in transport. There is hardware integration (according to infrastructure routes, at transport hubs; inland, gateway ports, international airports, sea port, railway stations) and software integration (institutions). This is the highest of the 3 levels. But in reality, there are scholars who identify coordination and integration in some cases, and they do not specify the content that needs to be integrated [4] or the authors still think that achieving sustainable transport is still a dream, because an integrated transport policy is a prerequisite for a sustainable transport system [10].

There are inter-sectoral co-operation, coordination and integrations (horizontal transport coordination, for example between the transport sector and other sectors such as Planning & Investment, Construction, Natural Resources & Environment...) and between sub-sectors and fields within the transport sector; between countries in the region and the world; vertical coordination between transport management levels (in transport sector, between superior and subordinate agencies); and cross-linking/mixed (a combination of horizontal and vertical; between sectors, sub-sectors, specialties, management levels like matrix form). Other while, there are: integration by space, by time, and mixed; by level (from 3 to 6 level) and mixed all of above mentioned categories. The author of work [25] introduces the methods/tools for the impact of integration including the following four general ways: (i) Integration between policy tools including different types of tools; (ii) Integration between policy instruments including the use of infrastructure, governance, information and pricing; (iii) Integration between transportation measures and those

intended to use the designated territory; (iv) Integrating transport with other policy sectors such as construction, health and education, land use.

The levels of co-ordination, coordination, integration and the relationship between them and planning are presented in figure 1a,1b.

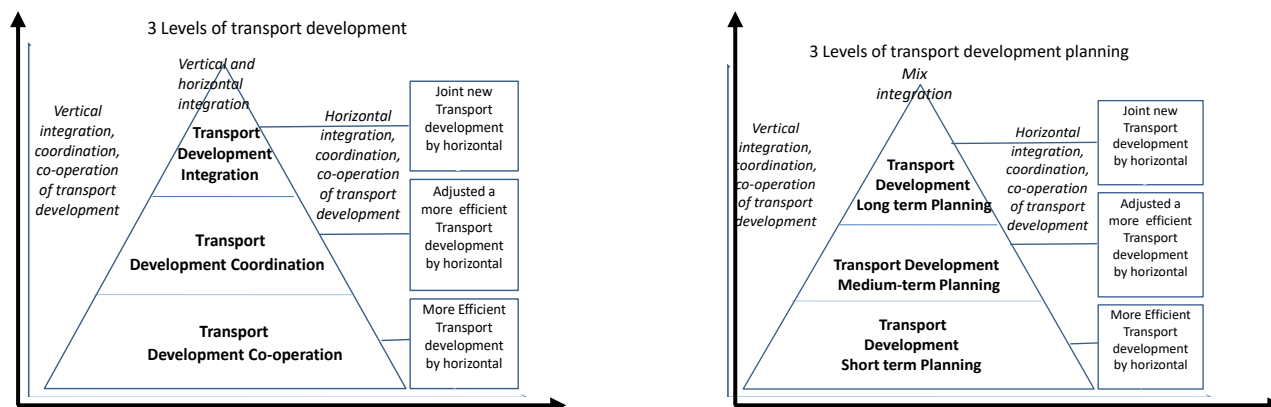


Figure 1a. Transport development levels Figure 1b. The relationships between planning levels

Source 1a: Based on the source [4], the authors further develop.

There are many factors affecting transport integration [21,22] such as: geographical and natural conditions; politics, foreign affairs; economic, financial; institutions and policies; social, people; national and regional infrastructure, techniques and technologies. Paper [2] introduces the impact factors in Europe, specifically as follows:

- i) Policy and social promotion towards a low-carbon, low-energy and circular economy;
- ii) Society moves to sharing and cooperative economy;
- iii) Demographic changes and social aging;
- iv) E-commerce is growing at a high rate in all European countries;
- v) E-commerce and product customization are shifting the need for shipping to small-size shipments;
- vi) Transport integration as a supporting policy;
- vii) Society promotes better use of existing infrastructure instead of building more new ones;
- viii) Rapid technological development in response to a changing world.

Through the paper [2, 21, 22] it is found that the influencing factors are introduced in different ways. However, it is more logical, reasonable and better to divide the influencing factors into two groups: subjective or internal and objective or external factors.

Thus, the policy of sustainable transport development has almost stopped at theoretical research, has not been applied much in practice in many developing and low development countries due to lack of resources and informatics.

According to Harry Geerlings[4], the challenge of 3P is to find a balance between accessibility and sustainable development of transport integration.

3.2 Opportunities and challenges of transport development integration

Opportunities: the positive side of transport due to its contribution to GDP, GDP per capita; contribute to increasing gender equality; equity among economic sectors and social classes; to increase circulation of goods, currency, import-export of goods and exit-entry of people among regions and countries; sustainable poverty reduction; narrowing the gap/reducing the gap between rich and poor, between urban and rural, mountainous areas; improve the cultural and spiritual life of the people.

Negative impacts of transport development: emissions of means of transport to the environment; GHG; traffic jams and accidents; occupying a lot of land to build transport projects and works, transport service activities and transport industry. According to experts, Vietnam belongs to the group of countries vulnerable to climate change.

Challenges of transport development, of transport development integration: Regional and local conflicts, the risk of expansion; epidemics, trade conflicts between a number of countries cause disruptions to and break supply chains, decline in the world economy; volume of imported, exported, imported and transit goods decreased; passengers on entry, exit and transfer decreased sharply; fluctuating fuel prices; exchanges between countries were stalled and interrupted. Vietnam's economy in particular and other countries in general, have been affected by the epidemic, the price changes of some commodities and electricity have caused a recession in the region's economy. Traffic congestion increased in many arterial and urban traffic routes due to the sudden increase in vehicles, especially personal vehicles. Traffic accidents are complicated, although they have decreased, they are still at a high level; uncontrolled GHG due to exhaust gases from motor vehicles, transport service, transport industry activities and transport construction; commercial and financial crises, armed conflicts in some regions. The sense of law observance of some people in traffic is not strict, especially young people.

By the methods mentioned in section 2 above, the results presented in this section are the following tables and comments.

3.3 Selection of the norms system

After considering the 3,4 and 5 criteria approaches, the 3P criteria approach with specific criteria and the following system of norms was selected by the author:

3.3.1 General criteria for transport sector

Regarding the criteria of transport sector: From [21], propose a general norms system suitable to Vietnam's conditions with 9 norms including: contribution to GDP, volume of transport, rotation, loading and unloading, throughput, transshipment; freight rates or transport costs; fuel and electricity consumption; air quality, GHG, traffic accidents and damage. Specifically, the general criteria, norms system of the whole transport sector are introduced in table 1.

Table 1. Aspects, general criteria and norms system of the whole transport sector

Aspect	Criteria	Norms
All aspects	General criteria	<ol style="list-style-type: none"> 1. Transport contribution to national GDP, GDP of provinces and cities* (%) 2. The volume of passengers and goods transported, loaded and unloaded; volume of circulation, transit, transshipment (pax, tonnage; pax.km, ton.km; $\text{ton}_{\text{load,unload}}$, $\text{TEU}_{\text{load,unload}}$, $\text{ton}_{\text{transit}}$, $\text{pax}_{\text{transfer}}$) 3. Service charges for transport (VND/pax.km; VND/ton.km), loading and unloading (VND/ton, VND/TEU); fees, charges and surcharges (VND) 4. Transport costs in logistics costs $C_{\text{transp}}/C_{\text{log}}$ (%), in cost of goods $C_{\text{transp}}/C_{\text{goods}}$ (%) 5. Amount of fuel, electric energy consumed (ton/year), kwh/year); 6. Travel speed-V_{travl}, $V_{\text{o-d}}$ (km/h); average trip speed V_{trip}; delivery speed-V_{delv} (km/h) 7. Air quality of CO_x, SO_x, $\text{PM}_{2.5}$ dust due to construction and upgrading of transport infrastructure works (ton/year); transport services and transport industry (ton/year) 8. GHG (ton/year), CO_2 emissions (ton/year); damage caused by emissions and exhaust gas of transport means (VND/year, USD/year) 9. Traffic accidents and damage (number of cases, number of deaths, injuries, damage VND/year, USD/year); traffic congestion and damage (minutes, hours; VND/year, USD/year)

Source: From [21], propose a general criteria, norms system suitable to Vietnam's conditions

Note: *Not only about transport and post service as the current statistics in the service area of the Vietnam GSO

From the table 1, it can be seen that the general criteria for transport sector are mostly found in current statistics, which are collected and aggregated daily, monthly and yearly summaries or periodically surveyed, gathered and aggregated, unexpectedly at the ministries: Planning and Investment(GSO), Transport, Finance...Some norms are introduced including calculation methods/formulas and/or their units.

3.3.2 Transport infrastructure field

Aspects, specific criteria, and set of norms for the field of transport infrastructure are introduced in tables 2a-2d. The general infrastructure of the transport sector, sub-sectors for P1a aspect-people is introduced in table 2a.

Table 2a. The general criteria set of norms of the transport sector infrastructure

Aspect	Criteria	Norms
People P1a	1. Access & equity	<p>1.1 Throughput capacity, capacity of infrastructure routes; transfer, transit points (PCU/day; pair of trains/day for railway; ton/day; DWT/day, TEU/day for maritime transport...)</p> <p>1.2 There is an infrastructure route with access to various modes of transport around the area, territory</p> <p>1.3 Co-operation, coordination, and integration of policies and plans on development of transport infrastructure and land use; land field available for construction of transport infrastructure projects(km/km²)</p> <p>1.4 Synchronicity, modernity, efficiency between infrastructure and modes of transport (expressways/freeway km; express railway km; No. of 4F category airport by ICAO; No. of internationals transshipment, gateway port)</p> <p>1.5 Safety and security on the route (km of safety, security/total km of transport infrastructure or meters of wharf and waterway port)</p>
	2. Health	2.1 Having good health; special health requirements such as pilots, train, ship, cranes drivers
	3. Education and training	3.1 Educational, professional competence and professional qualifications; experience, qualifications and other skills (management, leadership and soft skills, communication, informatics, etc.)
	4. Union, community	<p>4.1 Propagating, disseminating and educating the law on protection of transport infrastructure (No. of people)</p> <p>4.2 Responsibilities of the sector, sub-sectors in infrastructure management and protection (No. of people)</p> <p>4.3 Responsibilities of local authorities at all management levels and social organizations in protection and supervision of transport infrastructure in the locality (No. of people)</p>
	5. Quality of life	5.1 High quality, modern transport infrastructure contributes to improving people' living quality through smooth, fast and safe travel/transport (people)
	6. Public participation	<p>6.1 Participation of the community in drafting, promulgating and implementing policies and planning on infrastructure construction and protection (No. of people); legal documents on transport infrastructure (No. of documents)</p> <p>6.2 Supervision of the community in the performance of organizations and individuals (No. of people)</p>

Source: From [4], the adjusted specific criteria' name and the proposed system of norms

Regarding the general transport infrastructure in table 2a, it is found that after adjusting the names of 6 specific criteria for P1 on people, the author proposes P1a1 with 5 norms; P1a2 with 1 norm; P1a3 with 1 norm; P1a4 with 3 norms; P1a5 with 1 norm and P1a6 with 2 norms. These norms are suitable to Vietnam's conditions at present and in future.

The infrastructure of the sub-sectors for P1b aspect on people, specific criteria, set of norms are introduced in table 2b.

Table 2b.The aspect, specific criteria, set of norms on transport sub-sectors infrastructure for people

Aspect	Criteria	Norms
People P1b	1. Access & equity	<p>1.1 There are routes accessible by 1/2 transport modes; transport infrastructure routes around the area; urban and rural residents can enjoy the same travel conditions by mode of transport: road, rail, water, air</p> <p>1.2 Cooperation, coordination, and integration of policies and plans of transport infrastructure and land use; have land for construction of transport infrastructure projects (including wharves, warehouses, rest stations, ICD) and transshipment point, passenger transfer, TOD...</p> <p>1.3 Synchronous, modern projects, efficient in 1/2 transport modes (No. of points) and intermodal/multimodal transport infrastructure (No. of point)</p> <p>1.4 Safety and security on the route: number of safe and secure km/total number of km of transport infrastructure (% ,meter*)</p>
	2. Health	2.1 Having good health; special health requirements for some occupations (levelers, workers working in deep tunnels, overhead...)
	3. Education and training	<p>3.1 Educational, professional competence and professional qualifications; training, experience and other skills (management and soft skills, communication, informatics, foreign languages)</p> <p>3.2 Training to improve education, professional qualifications and skills (No. of people)</p>
	4. Unions, community	<p>4.1 Developing and implementing policies, development planning, legal documents on transport infrastructure (No. of policies, documents)</p> <p>4.2 Propagating, disseminating and educating the law on protection of transport infrastructures (No. of people)</p> <p>4.3 Responsibilities of each transport sub-sector, local authorities, social organizations, community, individuals for the protection of transport infrastructure (No. of people)</p>

5. Quality of life	5.1 Modern, high-quality transport infrastructure contributes to improving people's quality of life (fast, smooth; less fatigue, pollution...when traveling)
6. Public participation	6.1 Participation in drafting, promulgating and implementing policies on construction and protection of transport infrastructure (No. of people) 6.2 Supervising the implementation of organizations and individuals on construction activities; building culture, raising the legal consciousness of transportation participants in the transport infrastructure (No. of people)

Source: From [4], the adjusted specific criteria' name and the proposed system of norms

Note: *m = meters long port, wharf

Regarding the transport infrastructure of sub-sectors, it is found in table 2b that after adjusting the names of specific criteria P1b for people, propose P1b1 with 4 norms; P1b2 with 1 norm; P1b3 with 2 norms; P1b4 with 3 norms; P1b5 with 1 norm and P1b6 with 2 norms.

The transport infrastructure of the sub-sectors on P2c aspect for planet, specific criteria, set of norms are introduced in table 2c.

Table 2c. Aspect, specific criteria, norms set of transport infrastructure of sub-sectors for planet

Aspect	Criteria	Norms
Planet P2c	1. Pollution prevention	1.1 Take measures to prevent pollution when constructing transport infrastructure: building sewers and drainage ditches; fence, soundproof wall; dam, embankment, breakwater, boat lock (km, m) 1.2 Take measures to prevent and protect against pollution when exploiting and operating the transport infrastructure route (km)
	2. Climate protection	2.1 Are there measures to protect against climate change such as tree planting; building guardrail walls, dikes, breakwaters, nets (km) 2.2 Are there measures to prevent due to climate change when constructing and operating the transport infrastructure route (km)
	3. Biodiversity	3.1 Ensuring biodiversity when building and upgrading the transport infrastructure 3.2 Ensuring biodiversity when exploiting and operating the transport infrastructure (km ²)
		4.1 Measures are to be taken to build a soundproof and noise-proof barrier, isolating both sides of the route, around the area with transport infrastructure works (m, km)

4. Precautionary action	4.2 Planting trees on both sides of the routes; building fences, dikes, embankments around the area, seaport waters, wharves, boat locks on rivers (m, km)
5. Habitat preservation	5.1 Displacement of rare flora and fauna (individuals, species) 5.2 Creating natural habitats for some rare species (individuals, species)
6. Aesthetics	6.1 Architecture of transport infrastructure works with aesthetics: beautiful, suitable for natural landscape, surrounding environment and in accordance with local and regional customs (No. of works)

Source: From [4], the adjusted specific criteria' name and the proposed system of norms

Regarding the specialized transport infrastructure, it is found in table 2c that after adjusting the names of the specific criteria P2c for the planet, the authors propose P2c1 with 2 norms; P2c2 with 2 norms; P2c3 with 2 norms; P2c4 with 2 norms; P2c5 with 2 norms and P2c6 with 1 norm. For planet P3d transport infrastructure of sub-sectors are introduced in table 2d.

Table 2d. The aspect, criteria, set of norms on P3-profit transport infrastructure of sub-sectors

Aspect	Criteria	Norms
Profit P3	1. Affordability	1.1 Expressway toll (VND/km); high-speed, express railway tax, fee (VND/km); entrance, loading, unloading charges at transshipment ports, international gateways in maritime and aviation (VND/ton; VND/TEU) 1.2 Train fares and fees suitable for people's income (VND/ticket, %/GDP per capita) 1.3 Fees and charges for transport means' care, storage and warehousing are reasonable compared to the income of individuals and households (VND/time; VND/ton; VND/ton.km)
	2. Resource efficiency	2.1 Efficiency of the section, project, transport infrastructure works (VND, %); capital recovery time of the work or project (t_{year}) 2.2 Economic feasibility (EIRR-%), financial feasibility (FIRR-%) of transport infrastructure projects and works; Cost/Benefit (C/B); cost - revenue (R-C); (revenue-cost)/cost (R-C)/C; efficiency of machinery, equipment, workers, and information technology (VND/year) 2.3 Ratio of land for static & dynamic transport to urban construction land (%)
		3.1 State budget capital, non-state budget capital allocated for

	3. Expense	<p>construction of transport infrastructure works, section (%)</p> <p>3.2 State budget capital, non-state budget capital allocated for transport infrastructure maintenance (%)</p> <p>3.3 Ratio of state budget capital, non-state budget capital allocated for construction of transport infrastructure works to GDP (%), or of total investment capital (%)</p> <p>3.4 Mixed capital (including PPP) for construction and maintenance of transport infrastructure of each sub-sector (VND, USD)</p> <p>3.5 Construction costs of transport infrastructure projects (VND, USD)</p>
	4. Trade, business	<p>4.1 Construction and repair business, infrastructure and transport projects</p> <p>4.2 Construction, exploitation and operation of transport infrastructure projects according to BOT, BT, PPP, BLO, O & M...</p> <p>4.3 Inspecting and handling organizations, enterprises and individuals on business activities of transport infrastructure assets (No. of people)</p>
	5. Employment	<p>5.1 Settle and arrange jobs for workers in the field of transport infrastructure: construction, repair, management and maintenance of transport infrastructure (No. of people)</p> <p>5.2 Arrange redundant workers, create jobs; for people with disabilities, women, the unemployed (No. of people)</p>
	6. Capacity, productivity	<p>6.1 Capacity (design/actual %) of routes, ports (airports, airfields; ports, inland waterways wharves, bus stations; warehouses, transshipment points, passenger transfer); equipment capacity (design/actual%)</p> <p>6.2 Capacity of the route (PCU/day; train/day; TEU, DWT)</p> <p>6.3 Handling and clearance capacity of ports, inland waterway terminals, bus stations; transfer, transit points (PCU, ton/day, ton_{load-unload}, ton_{transit}, passenger, TEU/day, ship/day); number of train pairs (No. of train/day)</p>
	7. Taxes, fees, fares, charges, revenue, surcharge	<p>7.1 Income tax, VAT...for transport infrastructure construction companies (VND/year, USD/year)</p> <p>7.2 Traffic fees, charges, related revenues and surcharges paid by people and enterprises (VND/time, USD/turn)</p>

Source: from [4], after adjusting the specific criteria' name, authors propose a system of norms suitable to Vietnam

Regarding the transport sub-sector's infrastructure, it is found in table 2d that after adjusting the names of specific criteria P3d in terms of profit (cancel specific criteria of avoidance of irreversity[4]), the authors propose P3d1 with 3 norms; P3dc2 with 3 norms; P3d3 with 5 norms; P3d4 with 3 norms; P3d5 with 2 norms, P3d6 with 3 norms and P2d7 with 2 norms.

Regarding transport infrastructure, it can be seen from tables 2a-d that after adjusting the name of specific criteria with P1a about general infrastructure, there are 6 specific criteria with 13 norms; P1b people on infrastructure of sub-sectors has 6 specific criteria with 12 norms; P2 about planet has 6 specific criteria with 11 norms; P3 on profit has 7 specific criteria with 21 norms. These are norms suitable for Vietnam's conditions at present and in the medium and long term, helping planning agencies to make policies and plans for sustainable development of Vietnam's transport infrastructure in the future.

c. Specific criteria, system of norms of transport services field

For the people P1aspect, specific criteria and norms system of the transport service field are introduced in table 3a.

Table 3a. The people aspect, specific criteria and norms system of the transport service field

Aspect	Criteria	Norms
People P1	1.Access and equity	<p><i>1.1 Accessibility to public transport services</i> depends on the mode around the area(km), for example by road: within less than 1 km in urban areas, 2-3 km in rural areas, 3-5 km in remote/mountainous areas; accessibility of public transport services of disadvantaged groups (people with disabilities, old and weak); about aviation: within 10-40 km, are airports and airfields; about railway: 10-15 km with railway station; regarding IWT: within 7-15 km there is an inland waterway port, wharf in the area.</p> <p><i>1.2 Fairness and equality</i> in participating in the ownership and use of public transport means to conduct public service business after registration of transport means</p> <p><i>1.3 There is a connection and integration of the public transport service network and land use:</i> available land for the public transport service and the coordinated and integrated route; people enjoy public transport services fairly and equally in the ownership and use of public transport means</p> <p><i>1.4 Congestion on the route, at the transit point of public transport service</i> (minutes, hours)</p> <p><i>1.5 Accidents in public transport services on the route;</i> at parking lots, railway stations, airport terminals, airport fields, wharf ports (number of cases, deaths, injuries, property damage in VND, USD)</p> <p><i>1.6 Security in public transport services:</i> no loss of security on public</p>

		transport routes (secure km/total transport routes in %), on public transport means (secured means/total number of public transport means by sub-sectors (%)).
2. Health		2.1 Having good health; meet other health requirements for some occupations 2.2 Ratio of meeting the standards in the total number of public service providers (%)
3. Education and training		3.1 3.1 Educational, professional competence and professional qualifications in public transport services; communication, soft skills, experience and other requirements (No. of people, years) 3.2 Improve training, management, expertise and professional qualifications (No. of people)
4. Unions, community		4.1 Educating, propagating and disseminating the law on transport services (people) 4.2 Management responsibilities of specialized agencies in transport services operation (turn) 4.3 Supervision responsibilities of local authorities at all levels and of mass organizations and society in transport service activities (turn)
5. Quality of life		5.1 National, cities' , provincial, individual, household's income (VND/year) 5.2 High-quality transport services contribute to improving the quality of life of passengers and people because the quality of public transport services is improved (No. of people) 5.3 Damage caused by negative impacts on the quality of life of passengers and people using public transport services in using public means of transport (VND/person)
6. Public participation		6.1 Participation in transport service activities when there are related events such as sports, culture event like mitting (No. of people) 6.2 Participate in drafting, promulgating and implementing policies and plans for sustainable development, legal documents on public transport services for passengers and goods (number of people, tons of goods) 6.3 Monitoring of the community for the performance of organizations and individuals in cargo and passenger transport services (No. of people, of transport means, tonnage, TEU)

Source: from [4], after adjusting the specific criteria' name, propose a system of norms for transport field

Regarding transport services in table 3a, it was found that, after adjusting the names of specific criteria P1 for people, the authors propose P1a1 with 6 norms; P1a2 with 2 norms; P1a3 with 2 norms; P1a4 with 3 norms; P1a5 with 3 norms and P1a6 with 3 norms. These norms system are suitable to Vietnam's condition.

For the planet P2aspect, specific criteria and norms system of the transport service field are introduced in table 3b.

Table 3b. The planet aspect, specific criteria and norms system of the transport service field

Aspect	Criteria	Norms
	1. Pollution prevention	<p>1.1 Use environmentally friendly and green transport; renewable fuels such as electric power, wind, solar energy</p> <p>1.2 Ratio of road vehicles meeting EURO 4 or higher standards to total road vehicles; number of diesel, electric/total locomotives; number of trains; ships with diesel, electric engine locomotives; high-speed trains/total trains (%); number of electric cars, electric buses, diesel trains, electric ships/total number of cars, buses, trains, ships (%)</p> <p>1.3 Air pollution (CO₂, dust PM_{2.5}; 5,10); noise (>70 db)</p> <p>1.4 Safety in public transport services: number of traffic accidents/10⁴ means of transport; number of cases/10⁵ people; rate of deaths due to public transportation services (number of deaths/10⁴ means of transport; number of deaths/10⁵ people; loss of money and property in VND/year) caused by public transport services to the country and city, province (% vs. with GDP)</p> <p>1.5 Number of public transport service routes that do not cause harm to the living environment and ecological environment/total number of public transport services (%)</p>
	2. Climate protection	<p>2.1 Standards of transport means, specifying the service life of transport means (years)</p> <p>2.2 Percentage of transport means meeting emission standards/total number of transport means (%); rate of meeting standards on littering, dirt into the land and water environment of road, railways, sea, inland waterways transport means and pollution due to garbage and waste (%)</p> <p>2.3 Percentage of transport means that meet both standards to combatGHG emissions, emissions due to environmental degradation</p>
		3.1 No adverse impact on living environment, ecological environment (±)

Planet P2	3. Biodiversity	3.2 Protecting biodiversity when formulating and implementing policies and planning public transport services; protection of rare and endangered species of flora and fauna in the red book (species) 3.3 Setting up biodiversity zones and gardens on both sides of the road, around the new public transport service area (m ²)
	4. Precautionary action	4.1 Only environmentally friendly public transport means are allowed to use 4.2 Encourage, facilitate and give incentives to organizations and individuals to use clean, green and environmentally friendly transport means (VND/year) 4.3 Damages caused by environmental pollution to the country, province, city and residential area (VND, VND/person); support to overcome environmental degradation from the budget, environmental protection fund (VND/year) 4.4 Granting greenhouse gas emission quotas (tons of GHG emissions) to sub-sectors and specialized regions; transfer/sell quota (ton/year)
	5. Habitat preservation	5.1 Public transport service route does not harm the living environment (km) 5.2 Facilitating environmental conservation: historical and cultural relics, conservation: primeval forests, national parks, ecotourism (km ²)
	6. Aesthetics	6.1 Architecture of means of transport, public transport service routes, terminal, station, piers, vehicle parking spots, etc...are aesthetically pleasing and suitable for the landscape and environment

Source: from [4], after adjusting the specific criteria' names, authors propose a system of norms suitable to Vietnam's condition

Regarding transport services in table 3 aspect P2, it was found that after adjusting the names of specific criteria for the planet, the authors proposed P2b1 with 5 norms; P2b2 with 3 norms; P2b3 with 3 norms; P2b4 with 3 norms; P2b5 with 2 norms and P2b6 with 1 norm. These system of norms suitable to Vietnam's condition at present and in future.

For the profit P3 aspect, the specific criteria and norms system of the transport service field are introduced in table 3c.

Table 3c. The profit aspect, specific criteria and norms system of the transport service field

Aspect	Criteria	Norms-Chỉ tiêu
Profit P3	1. Affordability	<p>1.1 Costs, fares and charges for public transport services (how much % of income, e.g. ~1-2%/monthly income); revenue of public transport services enterprises \geq cost, and profit (VND, %); people's ability to pay for public transport services when fares and charges are reasonable (%)</p> <p>1.2 Investment in buying/leasing to purchase means of transport, loading and unloading for business (VND)</p> <p>1.3 Contribution of public transport services to GDP (%) through the volume of passengers, cargo transported, rotated; loaded and unloaded (pax, ton; pax.km, ton.km; ton_{load-unload}, transit pax), freight rates/costs (%)</p>
	2. Resource efficiency	<p>2.1 Relative efficiency: profit=revenue-cost (VND); absolute: profit vs revenue (%); financial efficiency, employee efficiency, informatics</p> <p>2.2 Efficiency of transport means, load-unload facilities and workers (VND/transport means, person);</p> <p>2.3 Economic feasibility (EIRR \geq 12%), financial feasibility (FIRR \geq 12 or 0 %)</p> <p>2.4 Sustainable capital, other sources of capital for transport means services (Investment in means of transport, loading and unloading, transport supporting services in VND) and efficiency (%)</p> <p>2.5 Support and incentives for urban passenger public transport in terms of revenue, invest for transport means</p> <p>2.6 Synchronicity, coordination, integration within each mode and between modes of transport such as vertical, horizontal, and cross coordination)</p> <p>2.7 Time to recover investment capital, time to depreciate transport means (No. of years)</p>
	3. Expense	<p>3.1 Cost, cost/freight, charges (VND/pax.km, VND/ton.km), loading and unloading (VND/ton, VND/TEU)</p> <p>3.2 Productivity of transport services (ton, ton.km; pax, pax.km; ton.km for exchange in railway; ton of loading and unloading, ton through seaport, by air (ton_{loading and unloading}, ton_{transit}, TEU)</p> <p>3.3 Average time per trip, shipment, O-D time (hours, days)</p>
		4.1 Types of public transport business; opening, entry, exit/withdraw

4. Business, trade activities	to/from the transport service market 4.2 Equality and non-discrimination in public financial services business for all economic sectors (VND) 4.3. Priority and incentives in some public transport service lines
5. Employment	5.1 Arrangement of employees according to their responsibilities and tasks 5.2 Settlement of jobs; arrange existing and redundant labor, create new jobs; solving unemployment, employing disabled people 5.3 Separate policies for some specific types of workers: pilots, train, heavy vehicles drivers, cranes driver
6. Capacity, productivity	6.1 Transport capacity of transport means; loading and unloading (total number of vehicles, tonnage, horsepower; number of vehicles, No. of trains, of ships; medium and large container ships (piece, DWT, TEU; number of aircraft equivalent A380); loading and unloading facilities, cranes (ton loading, Ton transit, TEU) 6.2 Productivity of transport means (e.g. ton.km/ton. Vehicle/month, VND/month), of loading and unloading, of workers (ton/month, VND, VND/month)
7. Taxes, fee	7.1 Taxes for public transport services such as: license tax; corporate income, personal income; VAT, import and export tax on goods, special consumption, and import and export fees of people and of transport means (VND/time)... 7.2 Fees for public transport services such as: traffic fees through the number of transport means; ports, port waters area, inland waterways, wharves (VND), insurance, unemployment and highway tolls paid by transport service enterprises; tax: import and export of petroleum, environmental tax; fee, charges and surcharges (VND) 7.3 Tax and fee incentives for some lines of sub-sectors (VND)

From the source [4], adjust the name of specific criteria; propose norms suitable to Vietnam's conditions

Regarding transportation services in table 3c, it was found that after adjusting the names of specific criteria P3 in terms of profit, the author proposed P3c1 with 3 norms; P3c2 with 7 norms; P3c3 with 3 norms; P3c4 with 3 norms; P3c5 with 3 norms; P3c6 with 2 norms and P3c7 with 3 norms. The authors introduce both units or how to calculate some of the above mentioned norms.

Through table 3, it is found that the specific criteria have been adjusted in terms of number and name; propose and concretize norms, units/calculations in public transport service. The proposed

norms are carefully considered during the research process and are different from the criteria mentioned in 3, 4 or 5 aspects/criteria before. At the same time, a very important point according to the author is that it is quite consistent with regional and international criteria and norms both at present and in the future.

d. Specific criteria and norms on the field of the transport industry

Specific criteria and norms for the field of transport industry are introduced in the tables 4a,b,c below. For the people aspect P1, specific criteria, norms system of the transport industry field are presented in table 4a.

Table 4a. The people aspect, specific criteria, norms system of the transport industry field

Aspect	Criteria	Norms
People P1	1. Access and equity	<p>1.1 Fairness for all economic sectors, enterprises and factories/workshops in terms of establishment, entry, operation and withdrawal from the field of transport industry (unit)</p> <p>1.2 Number of enterprises and factories/workshops building, assembling and repairing transport means newly established, joined, operated or withdrawn from the field (unit)</p> <p>1.3 Number of enterprises and factories/workshops engaged in building, assembling and repairing (unit)</p>
	2. Health	2.1 Being healthy enough for transport industry activities (people); Other special requirements (fitness, eyesight) for some professions like aircraft, big ship repair and so on
	3. Education and training	<p>3.1 Education, expertise and professional qualifications (e.g. 12 grade, 3-5 years of practice/experience)</p> <p>3.2 Experience and related skills (manager, leader & employees with soft skills, communication, law, informatics, foreign language) in the field (years)</p>
	4. Unions, community	<p>4.1 The supervisory role of mass organizations on transport industry activities (No. of people)</p> <p>4.2 The supervisory role of society on transport industry activities (people)</p>
	5. Quality of life	<p>5.1 High-quality transport industry contributes to improving the life quality of people, urban and rural residents due to less pollution, reducing occupational accidents (VND/year)</p> <p>5.2 Damages related to the transport industry due to negative impacts on people's quality of life (VND/year)</p>

	6. Public participation	<p>6.1 Participate in the drafting and implementation of policies, planning and legal documents on the transport industry (No. of people)</p> <p>6.2 Inspection, examination and supervision by functional agencies and communities in the field of organizations, enterprises, factories/workshops and individuals (case, No. of people)</p>
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Source: from [4], after adjusting the specific criteria' names, authors propose a system of norms

In the field of transport industry, through table 4a for people, it is find that after adjusting the names of specific criteria, the author has proposed P1a1 with 3 norms; P1a2 with 1 norm; P1a3 with 2 norms; P1a4 with 2 norms; P1a5 with 2 norms; P1a6 with 2 norms. These normsaresuitable to Vietnam's condition.

For theplanetaspectP2, specific criteria, norms system of the transport industry field are presented in table 4b.

Table 4b. The planet aspect, specific criteria, norms system of the transport industry

Aspect	Criteria	Norms
Planet P2	1. Pollution prevention	<p>1.1. Precautions of enterprises and factories/workshops when building and installing new building and assembling equipment (VND)</p> <p>1.2 Preventive measures of enterprises and factories/workshops when operating and exploiting new building and assembling transport means (VND/year)</p> <p>1.3 Precautions of enterprises and factories/workshops when installing, operating and exploiting equipment for repair and maintenance of transport means (VND)</p> <p>1.4 Measures to treat waste, wastewater, air pollution, noise when operating in the transport industry (VND/year)</p>
	2.Climate protection	<p>2.1 Percentage of transport industry means and equipment meeting noise standards/total number of transport means and equipment (%)</p> <p>2.2 Percentage of transport industry means and equipment meeting emission standards/total number of transport means and equipment (%)</p> <p>2.3 Percentage of transport industry means and equipment meeting both noise and emission standards (%)</p>
		<p>3.1 Percentage of transport industry products meeting environmental standards (%); no adverse impact on living environment and ecology (%)</p> <p>3.2 Percentage of equipment (transport industrial enterprises) meeting</p>

	3.Biodiversity	standards on littering, waste into land, water and air environment (%) 3.3 Damage caused by environmental pollution to Viet Nam, cities and provinces (VND/year) 3.4 Damage to environmental pollution caused to the area due to increased costs of biodiversity protection and troubleshooting (VND/year) 3.5 Tonnage of GHG emissions (tons), the amount to overcome environmental degradation; increased amount of medical examination and treatment costs (VND, VND/person)
	4.Precautionary action	4.1 Approved preventive action (VND) 4.2 Inspection, control and supervision of preventive activities by functional agencies towards enterprises, factories/workshops (turn)
	5.Habitat preservation	5.1 Measures to preserve the living environment of enterprises and factories/workshops (VND) 5.2 Inspection, control and supervision of conservation activities by authorities for transport enterprises and factories/workshops (VND) 5.3 Living environment, ecological environment around the area with enterprises, factories /workshops (shipbuilding, vehicle assembly...)
	6.Aesthetic	6.1 The architecture of enterprise and factory/workshop are aesthetically pleasing, in accordance with the laws and customs of the country and city, province 6.2 The architecture of products of enterprises and factories/workshops is aesthetically pleasing, in accordance with the laws and customs of the country and city, province

Source: from [4], after adjusting the specific criteria' name, propose a system of norms

In the field of transport industry, it is found in table 4b that, after adjusting the names of specific criteria P2 about the planet, the author proposed P2c1 with 4 norms; P2c2 with 3 norms; P2c3 with 5 norms; P2c4 with 2 norms; P2c5 with 3 norms; P2c6 with 2 norms. These norms are suitable to Vietnam's condition.

For the profit aspect P3, specific criteria, norms system of the transport industry field are presented in table 4c.

Table 4c. The profit aspect, specific criteria, norms system of the transport industry field

Aspect	Criteria	Norms
Profit P3	1.Affordability	<p>1.1 Localization rate in new construction and assembly of transport means (%)</p> <p>1.2 Percentage of new construction and assembly enterprises with modern production lines in the total number of transport industry enterprises (%)</p> <p>1.3 Enterprises and factories/workshops capable of paying investment costs (unit)</p> <p>1.4 Enterprises and factories/workshops that can afford to invest and purchase equipment for production, assembly, repair and replacement of transport means</p> <p>1.5 Enterprises, organizations and individuals capable of investing and purchase equipment to build, assemble and repair transport means (VND)</p>
	2.Resource efficiency	<p>2.1 Revenue, costs and profits from building, assembling and repairing of transport means (VND)</p> <p>2.2 Number of lines and equipment of the enterprise, workshop that builds, assembles and repairs industrial transport means (pieces) and the efficiency of equipment and enterprises (VND/year)</p> <p>2.3 Number of managers and workers at the enterprise, workshop that building, assembling and repairing transport means (No. of people) and human resource efficiency (VND/person)</p> <p>2.4 Financial sources, financial performance of the enterprise (VND/year)</p>
	3.Expense	<p>3.1 Expenses for investment, procurement of equipment for building, assembling and repairing of transport means</p> <p>3.2 Cost/cost of investment, procurement of domestically produced, manufactured and imported means of transport (VND, USD)</p>
	4. Business, trade activities	<p>4.1 Trading in industrial equipment and means of transport (VND)</p> <p>4.2 Purchase and sale of manufactured and assembled products by the transport industry (VND)</p> <p>4.3 Purchase and sale of products; total components of the transport means (the engine, chassis for replacement or repair vehicle VND)</p>
		5.1 Arrangement of workers in the transport industry according to their responsibilities and jobs, employees, managers, and leaders (person)

	5. Employment	<p>5.2 Job creation, labor arrangement at enterprises and factories/workshops (No. of people)</p> <p>5.3 Specific policies on material and mental health for some specific types of workers at enterprises and factories/workshops (VND)</p> <p>5.4 Number of highly specialized and skilled workers (No. of people); retaining talented people and skilled workers through salary, bonus and social welfare policies (VND)</p>
	6. Capacity, productivity	<p>6.1 Production, assembly and repair capacity (actual/design) of enterprises and factories/ workshops (%)</p> <p>6.2 Number of enterprises and factories/workshops with production lines for building and assembling modern and high-productivity means of transport (No. of enterprises); capacity (cars/year; wagons/year, ships/year)</p> <p>6.3 Productivity of building, assembling and repairing of transport industry enterprises and factories/workshops (VND/year)</p> <p>6.4 Number of skilled and highly specialized repairmen; number of repair and maintenance workers (person) and productivity of workers and equipment (VND/person)</p>
	7. Taxes, fee, cost	<p>7.1 Taxes for the transport industry: license, corporate income, special consumption, VAT, import and export of goods, total components, components...; special preferential policies for the field because it cannot be produced domestically (VND/year)</p> <p>7.2 Fees and prices in the field of transport industry; surcharges, other sources of income (VND/year)</p>

From the **source** [4], after adjusting the specific criteria' name, propose the system of norms

In the field of transport industry, it is found in table 4c that after adjusting the names of specific criteria P3 for profit, the authors propose P3c1 with 5 norms; P3c2 with 4 norms; P3c3 with 2 norms; P3c4 with 3 norms; P3c5 with 4 norms; P3c6 with 4 norms and P3c7 with 2 norms. These norms are suitable to Vietnam's conditions.

Through table 4, it is found that 19 specific criteria have been adjusted in terms of number and name; propose and concretize norms, units/calculations in the field of transport industry. The proposed norms have been carefully considered in the research process and are almost new compared to previous works in Vietnam. At the same time, it is consistent with regional and international criteria and targets in the present and in the future.

e. Some solutions of integration

Integration between the transport infrastructure and land use is very important to ensure that there is land available for the transport infrastructure in both dynamic and static traffic, both in hardware and software issues. This is the most difficult, entangled work in most countries, including Vietnam. Integrated policy making needs to be done both at the formulation stage and at the policy implementation stage; land available for construction and development of future transport infrastructure projects, have clean ground for construction of traffic works, and at the same time ensure food security in narrow territories such as central part of Vietnam. South or areas with fertile and fertile soil suitable for rice cultivation, aquaculture such as the Mekong River Delta (southwest) or the ratio of land for urban transport/urban construction land (%) according to regulations in special cities such as Hanoi, Ho Chi Minh city and urban areas of grade I under central government. In planning future integrated policies, sustainable development planning of transport infrastructure must ensure the connection of 2,3 routes: road, railway, waterway and at the point of co-operation, coordination, modal transit such as railway station, airport, seaport, dry port, ICD...at the same time in single mode, especially by road, must ensure uniformity in load (e.g. H30, XB80 as USA Highway Association standards), static height without overpass, underpass (4.5-4.75 m); the height of the power transmission line crossing the road, in the waters of inland waterways (> 5.50-8.0 m), seaports (25-30 meters).

Integration between ministry of transport and local authorities at the provincial and regional levels where transport works are located: the central government allocates funding and directs the project implementation; local authorities are responsible for providing funding for compensation, site clearance, and clean ground provision from local budgets or receiving support from central budgets for construction of transport works. The main issues here are: i) funding; costs and prices of building materials; ii) time of funding for compensation and site clearance; iii) tally at the site of works or projects; organizing bidding, selecting contractors; iv) time of handover of construction site; v) funding according to the construction progress of the work or project; vi) resettlement, vocational training/vocational retraining for residents in areas that need to be relocated due to construction of transport works or projects; vii) division of responsibilities, decentralization of management during the construction of works and projects, and viii) settlement of works and projects.

Integration in the formulation and implementation of sustainable development policies: is the close and effective horizontal coordination between ministries, agencies and organizations, between the transport sector and the construction, the environmental sector...; vertical coordination between superiors and subordinates in the same sector or sub-sectors. Normally, a national, territorial or interprovincial steering committee is established by a government leader or minister, the president of the city/province and lasts for the duration of the construction of the work or project. Large-scale projects and works, across many cities, provinces, localities, implemented for many years, need to be considered according to national, regional and international criteria and norms. Promulgate regulations/mechanisms for coordination, division of responsibilities, assignment of tasks among agencies and organizations; between superiors and subordinates or in steering committees like matrix, to manage transport works and projects.

Institutional integration such as improving administrative procedures; perfecting the organizational structure of management, simplifying the bidding process: it is necessary to draft, issue and organize the implementation of institutional policies, amend and complete laws and legal documents, regulations related plans, eliminating local and group interests. Administrative reform, especially administrative procedures, shortened the intermediary level in the organizational apparatus, both in ministries, branches and localities. Formulate, promulgate and organize the implementation of rules, regulations and coordination mechanisms among ministries, branches, localities and social organizations in order to have a long-term vision, feasibility, effectiveness, efficiency and quality, quality, associated with the responsibility of the agency or organization in charge and main responsibility; clearly define responsibilities for participation, coordination, inspection and supervision of implementation; do not choose temporary measures, lack of feasibility, short-term, "just done and fixed/didn't fix it yet". This is a solution that can be implemented immediately, with little cost in terms of resources (financial, human, material and information).

4. CONCLUSION

The paper has studied the selective inheritance of works and paper abroad and in the country, based on 3 aspects, 3P criteria, giving specific criteria and proposing a set of norms for the whole transport sector, 5 sub-sectors and 3 fields of sustainable development of transport suitable to Vietnam's conditions at present and in the coming time. Some norms include calculation methods/formulas and units, comments and suggestions, implying policies, integrated planning for sustainable development of national, cities, provincial and municipal transport.

Completing the policy on sustainable development of transport infrastructure, transport services and the transport industry field is a work that needs to be carried out periodically, so it is also very difficult and complicated, requiring time, effort and experience, costs and the active participation and contribution, close and effective coordination of many ministries, organizations, agencies at all levels and individuals inside and outside the transport sector. At the same time, it is also the main work in the medium and long term, because it is the need to review, update, supplement and adjust the transport development policy in the strategy, planning, legal documents periodically (5, 10 years) and organize the implementation, check, summarize and evaluate the implementation. Therefore, the paper can be a good reference for agencies and organizations on planning and formulating policies and strategies for sustainable development of transport under 3Ps as well as organizations and individuals interested in development issues, sustainable development of the whole transport sector, the sub-sectors and transport industry field of Vietnam in the coming years. Recommendations, proposing organizations and individuals advising on the planning and implementation of sustainable development policies to be interested in the transport sustainable development policy according to the 3Ps of research, put some of the author's recommendations into practice as soon as possible.

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- Note: ¹No.4 Maputo Street. Zone 3, Wuse, Abuja, Nigeria, email: oi.ewhrudjakpor@frsc.gov.ng;
²Economics, University of Žilina, Univerzita 8215/1, 010 26 Žilina, Slovak Republic, e-mail: adela.poliakova@fpedas.uniza.sk; ³Road and Urban Transport, University of Žilina, Univerzita 8215/1, 010 26 Žilina, Slovak Republic, e-mail: milos.poliak@fpedas.uniza.sk

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*Note: ¹Research Institute of Highway Ministry of Transport, Beijing, 100088, China; ²Henan Polytechnic University, Jiaozuo, 454000, China; ³Yantai Urban Planning Formulation and Research Center, Yantai, 264000, China *Corresponding author's e-mail: hh.yin@rioh.CN*
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