

Future Fuels for Environmental Sustainability: Roles of Computing

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Abstract:

In this review paper, a number of research studies related to future fuels have been analysed. There have been several studies introduced in order to highlight hazards of fuels produced by different types of transportation and their effects for the environment. Transportation is a vital enabler of human civilizations. Currently, the main fuel source use to power these various modes of transportation is fossil fuel. Two third of anthropogenic greenhouse gases (GHGs) emission originates from fossil fuel combustion in transportation and industrial sector. These GHGs particles are pollutants which have negative impact on the climate and the environment. To reduce these environmentally-harmful pollutants, people are looking into the use of alternative and renewable fuels. Information and Communication Technology (ICT) is regarded as a key instrument to create an efficient transportation system and networks. Therefore, resulting in less fossil fuel combustion. This in turn will curb climate change and reduce carbon footprints. This paper will also review the various roles of ICT in managing sustainability, environmental issues, and their impact on future fuels. This include technologies such as Artificial Intelligence, block chain, internet of things (IoT) and cloud computing. ICT solutions also enable the establishment of intelligent transportation systems and traffic networks.

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I. INTRODUCTION

Humanity relies heavily on transportation as means of progress for their civilization. Transportation is a solution for moving whether it is related to goods or people, from a specific location to another. Transportation is important for us, as it enables the act of trade between people, which itself is essential for human development. On the contrary, one of the major problems is the impact on energy, climate and environment from gas particles produced by vehicles. A change in the climate affects the living conditions of mankind. Recent scholars in article [10] has stated that greenhouse gases (GHGs) is produced by human activities. However, two third of the leading contribution to anthropogenic emissions comes from fossil fuel

combustion for transportation, buildings, and industry. The anthropogenic GHGs, including methane, carbon dioxide (CO₂) and small quantities of other potent gases, also come from agriculture, mining, natural gases production, landfills and industrial processes [10]. The measures needed to reduce emissions of GHGs are large scale and comprehensive for our society. The accumulation comes mainly from the fossil fuels, or in other words from coal and oil and from deforestation. According to [15], the specific meaning of fossil fuel is A term used to describe a group of energy sources that were formed when ancient plants and organism were subject to intense heat and pressure over millions of years". In addition, current fuels used for

transportation are petroleum products made from crude oil that include natural gas processing such as gasoline, distillate fuels, jet fuel, residual fuel oil and propane. Consumption of fuel in private cars is doubled compared to public transportation since private vehicles are the preferred modes of transportation in developing countries, such as in Malaysia. A research has been done that over half a billion commercial cars and fleet are there in the world today and it is anticipated to grow 3% annually and in the next 20 years, it will double [3]. It is estimated that the consumption of fossil fuels for vehicles will continue to increase substantially over the years. Article [3] stated that projections have forecasted that the petroleum demand will keep increasing and doubled by 2020 from current level of usage that is about 75 million barrel per day. Despite government efforts to reduce private vehicles on the road to minimize carbon footprints by upgrading public transportation such as Light Rail Transport (LRT), commuters, Mass Rail Transport (MRT) and busses, still people preferred to ride on their own cars because it is more convenient and comfortable.

Currently, high expectations have been expressed regarding the potential benefits that the widespread use of Information and Communication Technology (ICT) could have reduced the growth in demand for transport and mobility services. These expectations have some effects on demand for policy making and priority setting, both in transport and fuel consumption areas. Specifically, in transportation strategy, the objective of decoupling of transport demand growth from economic growth has stimulated the interest in using ICT to maintain the environmental sustainability factor. Therefore, the potential of ICT in relation to sustainability attributed to its ability to curb and eliminate the climate change and carbon footprint issues. Furthermore, ICT platform needs to continually launch new applications that support traffic congestion control, transport logistics and transport infrastructure management. Additionally, ICT has also created the new era of transporting information rather than people. ICT applications have the potential to increase the efficiency of transport networks and decrease the negative externalities, decrease the congestion and increase the quality of transport networks and fuels consumption.

The objective of this paper is to review the roles of computing to manage sustainability and environmental issues and their impact for the future fuels. Articles and papers published between years 2001 and 2018 were reviewed. Selected papers were judged to include information about or containing the following terms: climate change, global warming, environment, sustainability, future fuels and computing technology. From here, these articles were further inspected and the decision for its inclusion and exclusion were mediated to develop a comprehensive review on global warming issues that are related to transportation fuels and how ICT can assist in mitigating them. Past articles used in this review were selected based on their relevance to the objective of this article. This paper is organized as follows: Literature Review is elaborated in Section 2. Discussion is provided in Section 3. In Section 4, Conclusion will be drawn.

II. LITERATURE REVIEW

A. *Environmental Issues*

In this globalization era, environmental issues have become a norm subject throughout the society. Over the years, the world has gone through a significant growth and development in the industry of transportation. This growth has certainly contributed positively to most of the people in this world as it makes travelling from one point to another much easier compared to the old transportation modes. Fuel usage in transportation platform has become the main contributor to the degradation of Mother Nature. The resulting of excessive combustion of fossil fuels through transportation modes has led to greenhouse effects which can cause a global climate change. The reality of the current transportation sector has become the second largest contributor to carbon dioxide (CO₂) emissions due to fossil fuel combustion [29]. Other than that, CO₂ emissions has been acknowledged as the most serious current environmental problem which is significantly become the biggest contributor to climate change [20].

Gases like carbon dioxide (CO₂), methane, nitrous oxide and halocarbons accumulate in the atmosphere after a long period of time, it combines and causing temperature of the earth to heat up. Over the past century, the temperature of the earth has been risen by approximately 0.7 Celsius and it

will rise by at least until 1.5 Celsius [20]. According to article [17], the issues complicates more as the decaying period of these gases differ from one another and it takes at least more than 5 years for a carbon dioxide (CO₂) emissions into the air to decay, chlorofluorocarbons at least 45 years and includes of other gases emissions that may take up to 114 years to decay. Some gases such as the nitrogen oxide strips of the stratospheric ozone layer which plays the role of protecting the earth's surface from the ultraviolet light radiation and can cause skin cancer if it takes a direct hit at human's skin [17].

As years passed, the air quality has been decreasing due to uncontrollable fossil fuels combustion. Toxic air pollutants are commonly associated with cancer, cardiovascular, respiratory and neurological diseases. Air pollution is the existence in the air of substances at a concentration or for a term above their natural levels, with the possibility to deliver an unfavourable impact. Air pollution is a blend of a wide range of substances, and the careful substance shift contingent upon what sources of pollution are nearby, the location, the time of year, and the weather [11]. In article [11] also stated that, the common gaseous pollutants include lead, carbon monoxide, nitrogen oxides, silicon tetra fluoride, benzene and volatile components and heavy metals such as zinc, chrome, copper and cadmium. In fact, majority countries have banned lead in gasoline as it can cause neurotoxic effects.

The problem does not stop there. The air pollutants agents have become one of the main factors resulting to water pollutions. By this means, it gives impact on hydrological conditions and water quality. A research had found out crude oil naturally produce Naphthenic Acids (NAs) up to 4% by weight and endocrine disrupting and toxic to aquatic organism and mammals [23]. One of the major contributions towards water pollution is from the high transaction of maritime operations. Oil spills from maritime activities have become one of the most worrying disaster that could threaten hydrological ecosystem. According to a research studies made, petroleum including gasoline, diesel, bunker fuel and unrefined crude oil spills remain among the highest publicized and environmentally

damaging disasters worldwide [32]. As marine transportation continues to grow, with 51,400 merchant ships are trading globally, approximately 3 until 5 billion tons of ballast water is transferred by ships annually. This increases the risks of introduction aquatic invasive species following by the discharge of untreated ships' ballast water, representing major threats to global biodiversity [32]. Furthermore, marine transportation includes dredging activities. This activity process is important to create and maintain sufficient water depth for shipping operation and port access because its function is for deepening harbour channels by removing sediments from the water bed. Even though they modify the hydrology by creating turbidity, this process will still give the negative impacts towards marine environment. Scholars from article [32] have stated that the rapid growth in seaborne trade and the increase of the vessel size is causing a high demand for port and harbour expansion and in some cases the construction of new ports which causing acquisition of new areas can lead to loss of terrestrial habitat and left behind the effects on the marine ecosystem.

Due to the massive usage of transportation nowadays, noise disturbance has also become the main contributor that carries the negative effects towards the environment. Noise is an irregular, chaotic or undesirable sound and noise from movement of vehicles affects human health and increase risk of cardiac disease. Loud noise of transportation in cities or high traffic roads affects not only the quality of life but also property values. Land values nearby highways or heavy road such as airports or in the middle of the city have become the decreasing agent to possible resident and might drop the property value. A study done by several scholars in [31] have figured that houses near train tracks with 65dB zone had up to 18 percent lower values compared to other locations outside the zone. A research has been made of the effects coming from noise disturbance to human health. Noise pollution can take a severe toll on human health in the long run period. The effects to human health include deterioration of mental health, deterioration of the ability to hear things clearly, increase the risk of heart diseases such as irregular heartbeat frequencies, palpitations etc., and can cause dilation

in the pupils of the eye which could interfere in ocular health in the later stages of age [22].

B. Transportation Fuels

Over the years, transportation has evolved so much and became an important part of a person's life. The whole world has been spectating a significant growth in the transportation sector. The evolution of transportation has evolved tremendously through time. A few million years ago, there are no motor driven transport. Therefore, human had to walk around to wherever they desire to go, from place to place. Moreover, as human starts evolving and become more civilized, they start to look for a platform for them to reach certain places without using a lot of one's man power with less time and more efficient. However, to support the invention of transportation, a source of energy has been identified to be the prime mover for the invention throughout the years. Fossil fuels is a leading fuel which conquers 80 percent of today's transportation sector and this shows that it is the result processes that change the energy resources into usable products [33]. The fossil fuels use as the transportation fuels nowadays includes gasoline or petrol, diesel, LPG (Liquified Petroleum Gas), jet fuel and marine fuel. However, fossil fuels are a natural resource that cannot be renewed and reinvented as it will be exhausted as years passed by and because of technological progress and economic growth, the demand for fossil fuels becomes increasingly high [21]. A prediction has been made that the depreciation time for petroleum and natural gas for the world will be around 34 and 36 years [26]. Despite on the issue regarding fossil fuels, there is a substitution fuel sources identified that can also become a solution to the environmental issues caused by transportation fuels. In order to mitigating the issues, scientist and researchers discovers renewable energy as the closest solution towards a healthy environment.

Biofuels have been identified as one of the renewable sources that can become possible fuel replacing the current transport fuels in the future use. Biofuels may be defined as bio-based products found or extracted from Mother Nature, such as wood, bagasse or peat or chemically transformed from biomass to form products such as charcoal, bio-oil, ethanol and biogas. Other than that, it can

also be defined that biomass can be used as fuel [8]. One of the biggest transportation modes which is aviation have taken a huge step towards applying and implementing biofuels as the main jet fuel in order to reduce carbon footprint in the skies. Another boost in aviation sustainability was the commercialization of biofuels as the replacement for jet fuel earlier in 2011. An airline, Etihad Airways, has been making efforts to develop sustainable fuel with Boeing and Masdar Institute, a research university in the United Arab Emirates, a country along the Persian Gulf covered with desert. Due to the lack of breakthroughs in the development of solar energy and batteries for aviation use, sustainable biofuel is currently the best alternative to jet fuel. If biofuels were to be used widely, the CO₂ reduction could be up to 80 percent. This means that biofuel is currently more sustainable than the current fossil fuel used in air transportation [14].

Although the benefits and advantage of biofuels as the substitution fuel seems to be convincing, there is still cons in it. Regardless of the disadvantage, there are a few other options at the table. One of the leading substitution transport fuel implemented nowadays is the use of electricity in transportation platform. Through the automotive market nowadays, semi-electric vehicles with a combination of electric and diesel/petroleum which known as hybrid vehicles have been introduced widely as the first approach for a greener environment. In recent years, hybrid electric vehicles (HEVs) have grown vigorously as a remunerative solution to the environmental problems with its intermediate approach to achieve outstanding mileage and low tail pipe emission compared to conventional internal combustion engines vehicles (ICEs) [18]. Majority of automotive company nowadays have been adapting the invention of HEVs such as Honda, Toyota, Nissan, and others. HEV is a definition of a vehicles that use ICEs in combination with one or more electric motors connected to a battery power source pack as the secondary energy storage that can create thrust to the wheels either together or separately [18]. However, there is certain companies that already implemented pure electricity for their cars. Electric vehicles (EVs) is one of the green transportation platforms that uses

electric motors or traction motors to create propulsion. EVs use rechargeable battery packs as its source of energy to power up electric motors to create thrust [18]. A pioneer of electric vehicle, Tesla Motor founded by Elon Musk have introduced the world to a green automotive approach by applying fully electric and yet can stay conventional to the world. According to a scholar, although electric cars do not necessarily reduce the consumption of fossil fuel or emission in huge scale, they have the potential to be when especially if lower emission power sources like nuclear become more widespread [27].

One of the clean energies that is listed to be prominent for the future is hydrogen. Hydrogen can become one of the substitution transport fuel which is greener and does not emits carbon to the environment. As a matter of fact, hydrogen is ample to be compared with other renewable energy sources. Looking at its chemical properties, only water vapor is produced from the combustion of hydrogen. In addition, studies have shown that hydrogen is considered as the cleanest energy source to support green transportation fuel for future use [1]. Current state for Hydrogen uses nowadays, Hydrogen is associated with the assistance of fuel cell and cannot fully be depending on itself as a stable energy source. Hydrogen and fuel cells are already been considered to be used in many countries as an important alternative energy source for a more sustainable future in terms of stationary power, transportation, industrial and residential sectors [25]. Regardless of the advantages, the exploitation of hydrogen as the possible transportation fuel in avoiding the emission of harmful gases remains debatable in the world. Other than that, it is found that the hydrogen-based transportation platform is not cost-effective in terms of development and sustainability [25].

Throughout the years, research have found that solar energy is among the list of renewable energy that can lift transportation platform nowadays to a greener and environmentally friendly. Solar cell also known as photovoltaic (PVs) is considered as important source of renewable energy for the future. Solar cells are electronic devices that convert sunlight into electricity [12]. Solar cells possessed a clear advantage over the conventional fuels due to

its ability to converts ample sunlight from the sun into electricity as the green transportation fuel without generating significant pollutant agents into the environment that might degrade the condition of Mother Nature [12]. The world has subsequently introduced solar power transportation throughout the years. In Australia, the world's first solar bus named 'The Tindo' was introduced in 2013 due to the Adelaide's city council who was keen on reducing the carbon emission. This is to mitigate the emission that comes from the conventional fossil fuel combustion as more than 30 percent of it comes from transportation. Other than that, Swiss explorer Raphael Domjan have also responded to the world bringing green approach to develop the largest solar-powered boat in the world named by PlanetSolar. These types of invention have shown that there is plenty of options on the table to support a greener environment by substituting the conventional transport fuel to a zero emissions fuel.

C. Roles of Computing – Solutions for the future

Information and communication technology, commonly known as ICT plays a vital role in the various futuristic modes of transportation. Other than that, ICT is known as one of the pillars of today's society [19]. Nowadays, technologies are disrupting the energy use that can transform everyday life and bringing clean energy. Technologies such as artificial intelligence, block chain and cloud computing are now making transportation rapidly grow. ICT can potentially be a prime-mover to inculcate change, namely by ICT applied to transportation platform through on-board user aid devices for educating the driver, improving efficiency, reducing costs and environmental impacts of urban mobility [7]. ICT market have been striving and continuously launching new application and framework which helps in taking urban transportation to another higher level while focusing on reducing short term as well as the long-term effect on the environment. The ICT assistance has the potential to increase the efficiency of these technologies and at the same time reducing negative impacts. With the development of ICT, operative issues can be dealt efficiently with up-most precision in terms of decision making. In other words, ICT solutions can raise the efficiency of data flow and information quality while allowing

obtaining real-time data to establish an intelligent transportation systems and traffic networks [7].

The best examples of the use of embedded ICT in the automotive industry nowadays is autonomous vehicle. Autonomous vehicle is an example of ICT greatest achievement with the help of Artificial Intelligence (AI) connected with all the sensor that assist the car to be maneuvering automatically [2]. In the context of assisting the future transportation fuel, AI can assist in terms of achieving the best performance without the harness effects of human while integrate with all sensors to achieve the best performance in terms of efficiency of driving and energy consumption. In addition, this ICT assistance did not only give comfort to the user, it can also minimize the possibility of accidents by increasing precisions and reducing human involvements that is currently becoming the major factor of accidents nowadays [2].

ICT covers a huge cooperation of different platforms and tools, in order to achieve the best performance. In the context of an Autonomous Car, several ICT functions are embedded within a single platform. These programs of the car are coded in a way to carry out its specified functions accordingly. It will be assisted by Global Positioning System (GPS) to integrate all functional system within the car to reach from a point to a certain point. GPS is a definition of a radio wave receiver used to provide coordinates that able to give the exact position of an element in a certain space. This positioning platform capture the radio waves emitted by the orbiting satellites and presents certain position based on coordinates of a certain point [24]. Nowadays, GPS is currently embedded with a bunch of platforms; and combination of GPS and ICT can assist driving course to be more energy efficient in terms of searching the best route that can save the energy consumption and reducing time-consuming factor. A researcher has done a study in China regarding the traffic efficiency for large scale urban networks by implementing GPS probe vehicle substituting fixed detectors (e.g., loop detectors and cameras) which are not practical for a large-scale traffic monitoring [16]. This shows the positive consequences on applying ICT for a sustainable future.

As the world becoming familiar with Electric Vehicles (EVs), major development combining the zero emitting vehicles with ICT not only in achieving the best energy performance the car can provide but also offering the best experience for the user while adapting a user-friendly element into the vehicle. EVs have a task to breakthrough its ability empowering the driving ranges of conventional fuel power vehicle. Continuous issue regarding limited driving ranges caused by limited capacity of build-in batteries storage have been a nuisance to the industry of EVs. However, by increasing the size of battery can only make up to a certain point while the cost, weight and space become the barrier to the solution. This is where ICT becomes an important role. An energy management system (EMS) has been considered as the solution for EVs in order to gain the best performance while using less energy to create longer ranges for every full-charged battery [13]. This EMS is integrated with a multi-agent system (MAS) embedded to the EVs to optimally utilize the existed energy while interacting the driver's behavior and preferences with the condition of environmental impacts [13]. This approach of ICT assistance for EVs industries can lift up trust factor for possible user to substitute their conventional car that use fossil fuel combustion to a clean and sustainable electric vehicle.

Due to the rapid growth of technologies, internet of things (IoT), high speed networks, sensor technology and cloud computing are creating massive opportunities to achieve sustainability [2]. Cloud computing and internet of things (IoT) possessed a unique relationship and had becoming promising chance to resolves the challenges caused by increasing transportation issues [6]. Modern transportation mode nowadays is radically equipped with abundant of sensors, actuators and communication devices (e.g. mobile devices, GPS devices). In addition, this scenario can integrate the current modern transportation medium nowadays with the advance cloud computing and internet of things (IoT) technologies to mitigating environmental issues and inefficient energy management. These approaches can be the solution to reducing transportation problem, in significant traffic, congestion, carbon emission and even vehicles safety [6]. Thus, from these studies, it is

important to realize how important the relationship of these two attributes between ICT and transportation are. ICT and computing are key players for achieving sustainable futuristic fuel that turns the conventional method to a more accurate way of collecting, obtaining and analyzing data along with precision decision making ability to mitigate current transportation issues.

III. DISCUSSION

What is the role of ICT in diminishing environmental issues along with creating a sustainable futuristic fuel? In years, ICT have been introduced well and is highly accepted by the society due to its advantages and contributions towards the society in every aspect we can imagine. However, ICT have its own positive and negative values that is highly debated [4]. In addition, to give a bigger picture about ICT in this world, imagine the ICT as a baby. The future of the baby relies on how the parents raises the baby. Either it is raised in an educated background, with appropriate manners or oppositely. Eventually, what matters the most is how ICT is being handle and implemented, either for good purposes or oppositely. Despite of the advantage's ICT possesses, ICT also contributes to the increasing levels of CO₂ emissions in terms of production of ICT machinery and devices, energy consumption and recycling of electronic waste. However, the positive side of ICT stills empowers the negativity and have been expected to reduce CO₂ emissions on a global scale by developing smart cities, transportation systems, electrical grids industrial processes and energy saving gains [4].

How ICT can be delivered in order to achieve sustainable future fuel? The use of ICT in science education in terms of research and development (R&D) gives ample of advantages due to attractive premises to stimulate any test experiments regarding possible energy which would be too dangerous and expensive in a real setting such as the study of Nuclear energy [29]. This shows how ICT can help fellow researcher and scientists to explore and discover new energy patterns that can achieve a sustainable futuristic fuel. This involves all activities to preserve and contain new energy such as nuclear, biofuels and etc. Not only that, ICT have shown the possibility in mass decontamination

regarding nuclear, biological, or chemical responses in case of any casualties and faulty from the energy research. This can also be the tools to strengthen command and control when casualties happen [9]. As mentioned by a group of researchers, they have agreed on a term called "Internet of Energy" bringing ICT as the bridge to join all computer platform based on a set of open standards and protocol to connect all components of the future energy systems (production, grids, storage, distribution) in a standardized open ICT architecture [5].

As for near future, the most feasible and best solution for automobile is fully electric vehicle (EV), this concept of idea was merely an ideology or some sort of a dream 100 years ago, but now, it is executed excellently and now becoming road legal. One of the most leading industry that have taken ICT as its main contributor towards sustainability is the EVs industries. EVs and ICT have become inseparable bond in terms of achieving the best performance along with efficient energy management as the success factor of the product. The crucial thing about EVs is how effective is the energy management system. By implementing ICT tools to create an energy management system for EVs industries, it can handle not only static optimizations (e.g., single-objective optimization which given a certain conditions) but it can also coupe with multi-objective optimization, such as energy scheduling, minimizing energy usage, minimizing peak demand, minimizing charging cost and others [28]. An energy management system can be equipped with sensors and tools to interact with the environment in order to achieve effective optimization of electric energy within a EV product [13]. By the existence of energy management system, managing energy would become easy with less energy waste to achieve a sustainable and environmentally friendly fuels for future use.

Awareness is no longer considered as a solution to create environmental-friendly society. Common transportation modes have become a norm in every single person for more than a decade. Manufactures and automotive companies are still competing to produce more and more transportation in order to achieve better business advantage. This issue coherent as the cause is presented through the

degradation of Mother Nature. In order to achieve a better environment, a strict approach needs to be taken by the government in order to mitigate the global climate issues. We live in an era which ICT becomes a typical topic for the society. By utilizing the ICT tools and platform to manage and help sustainability a reality can open up people's mind on how important it is to preserve the environment.

IV. CONCLUSIONS

In conclusion, current transportation modes have been really helping humans throughout the century in helping human mankind to travel from a certain place to other places. However, through the massive relying on transportation platform, it has increases fossil fuel burning throughout the process. Other than that, transportation holds an advantage to the economic growth to the nation. Despite of the positiveness, transportation also holds a major contributor to the degradation of environment and Mother Nature. This is due to the massive burning of fossil fuels by the conventional fossil burning cars and vehicles. It releases heavy and vast amounts of carbon emissions into the environment and it is causing damaging factors to the nature and leaving harmful effects to living entities of earth which is human, plants and mammals. Carbon that have been emits by massive transportation platform leads to greenhouse effect that lead to other several other drastic changes that resulting to the increased of global temperature. Therefore, to overcome this environmental issue, efforts have been taken by governments and corporate sectors, but it is still inadequate and incapable at the time being as the demand of fossil fuel is still sky-scraping. In order to mitigate the issues, varies types of alternative fuel and alternative energy have been considered as the substitution of the conventional fossil fuel. In supporting the efforts, government should assign policies and improving existed policies to inculcate the use and development of alternative transportation fuel in the near future. Henceforth, the usage of fossil fuel might reduce in order to preserve the earth and the living entities inside.

As can be seen, computing and ICT have been playing a great role in assisting industrialization in this era. Almost every problem come to a solution using ICT tools and platforms. Thus, with this technology, alternative transportation fuel can be discovered and manage efficiently. Even better it

may be replacing agent to the conventional fossil fuel. One of a leading and pioneer of alternative fuel company, Tesla have shown that there is no need of fossil fuel to run an industry when they can develop its product and industry fully energy efficient using hybrid battery power. With this substantiation shown by Tesla, it can open the eyes of other companies that there is a solution from fossil fuel consequences. The needs of massive corporation from corporate sector along with government sectors and all nation is crucial to overcome global environmental issues along with avoiding carbon footprints as much as possible. These initiatives might reduce the risk of health issues to the living entities in this earth. Eventually, using ICT tools to create a better system can brings all the issues to a solution when we cannot even think about it several years before. While the world is evolving, there is still one thing that still remains stern and rigid which is the people's mindset. In order to achieve survival factors for the next decades, current generation should open up minds and see the effects that is happening to our mother nature. Then, while realizing that the world is sick focus and give your all to create a sustainable environment for a brighter future. Human mankind needs to improvise in order to survive. Thus, a better transportation solution rather than prevention method, to curb the unfinished issues of climate change caused by our dirty hands.

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