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Abstract
This paper aims to illuminate the role of serial context among industry, academia and government, taking much care of the role of society and community in the sustainable regional planning and practice. This paper is composed of five chapters, each of them dealing with different aspects. In chapter 1, we give the little long introduction of the time of mutation and significance of locus that explains the conceptual background and framework of this paper. In chapter 2, we elaborate on the mutation and metamorphosis of structural, social, and natural changes in the world and especially Japan. In chapter 3 and chapter 4, the main chapters of this paper, we describe the evolution of academic town in megalopolis, the revitalization of technopolis, and the creative local culture of the World Heritage for the regional renaissance in Japan. In chapter 5, we conclude this paper. As for this illumination, we should pay more due regards to the locus, orbit and iconography of region to develop better hosting environment and habitat for global innovation of industry-academia-government collaboration’s serial contexts through sustainable tourism and tourism sustainability. Especially, at the time of natural and social mutation, we could not look over the heavy and sudden natural unexpected changes, the deep structural social and community changes in Japan, and war and terrorism in Asia on the global scene for sustainable rejuvenation.

Keywords
Regional renaissance, Industry-Academia-Government Collaboration, Revitalization of technopolis

1. INTRODUCTION: TIME OF MUTATION AND SIGNIFICANCE OF LOCUS

Japan is now on the time of mutation toward the regional renaissance and rejuvenated contemporary civilization, taking much care of natural providence and wisdom to adapt and readapt with the fundamental natural changes and deep social changes because of the East Japan Big Earthquake in 2011 and its simultaneous melt down of three nuclear power stations of Tokyo Electric Power Co. Ltd in Fukushima Prefecture on the Pacific Ocean, although the region had already provided the room for shock-absorber and the tolerance to cultivate an insight for risk management such as JFA Academy village of football with training school for Regional reconstruction and revitalization.

This result with heavy and long damages illuminated funda-
mental defects of risk management to overcome unexpected scientific theories and the ineffective practices as were seen in the miss judgments of synthesizer, especially just in time on the multiple choice feedback loop system of decision to meet the locus (Cha and Miyakawa, 2012). It is the reason why Kogakkan University established the faculty of Japanese Studies to develop the comprehensive scientific theory and abilities of students to make clear their subjects and to solve the problems on the effective practical science to cultivate the ability of insight and to obtain good result through effective performance. It is the new science and education to promote the synthesis of contemporary comprehensive and practical science to adapt with the new millennium and sharing economy on the neo civilization and ecological culture on the global scene (Miyakawa, 2015).

The United Nations General Assembly has adopted the resolution of 2017 as the International Year of Sustainable Tourism for Development. The sustainable tourism is the best hosting environment to accelerate fastest industrial growth and regional renaissance toward rejuvenated neo civilization. It goes without saying that it is necessary for sustainable tourism to continue and to preserve the tourism sustainability on the global scene under the sustainability criteria and indicator based on the unique and traditional Japanese socio-culture and politico-economy and science (Fig.1-2).

The synergism and synchronism between sustainable tourism and tourism sustainability are clear in the spiral transformation of American Megalopolises, especially in the metamorphosis of Western Megalopolis on the Pacific. Inquiring into true state of things, it is closely related with global serial collaboration and innovation of industry-academia- governments’ cooperation context and soft mega-infrastructures in the innovative hosting environment and hard mega ones (Fig. 1-3).

The United Nations succeeded several treaties and activities of League of Nations (Geneva, Swiss) after the end of World War I in 1920 based on the 14 points of President Woodrow Wilson, who is former President of University of Princeton, for World Peace in 1918 and Versailles Treaty in June 1918 on the Paris Peace Treaty Conference of 42 countries in January 1918. Notwithstanding the relocation of head office of United Nations to New York, several international organizations of League of Nations still remain in Geneva and former sites such as BIS in Basel on the border of three countries, Swiss, Germany and France along the river Rhine. Its central office of League of Nations still remains as the Europe head office of United Nations that still preserves the iconography of whole

![Fig. 1-1. Structure of Sustainability and System of Rejuvenation](Source: Author)

![Comprehensive Theoretical Science](Source: Author)

![Fig. 1-2. Comprehensive Theoretical Science and Effective Practical Science](Source: Author)

![Fig. 1-3. Synergism of Leading Industries and Synchronism of Megalopolis](Source: Author)
United Nations activities, still in Europe and then in Asia on the global scene.

Japan had been the member of standing committee of League of Nations, although Japan withdrew from the League of Nations in 1932, whose vice-head officials were Inazou Nitobe, Sakuzo Yoshino and Kanzo Uchimura. Inazo Nitobe born in Iwate (1862~1933) was also the Chairman of the Research Committee of the Pacific. He learned German and American Agriculture and Economy Science through his careers, and became the Professor of Sapporo Agriculture School, Engineer of Taiwan Government General, Professor of Kyoto University, Principal of the First High-school, Tokyo, Professor of Tokyo University, Exchange professor between Japan and USA and President of Tokyo Women’s University (1920~26) and then the Vice-head official of League of Nations. We also recognized invisible linkages on basic belief and thought through universities, Sapporo Agricultural School with Kanzo Uchimura born in Takasaki (1861~1930) and Tokyo Imperial University with Sakuzo Yoshino born in Miyagi(1878~1933), whose cultures were cultivated closely linked with their loci. Considering roles of organization, not only organizations but also serial personal international linkages on IAG context and personal career, they exerted influences on spiritual entrepreneurship and sustainability on the global with local creation through the IAG context in rejuvenated Japan and regional renaissance on the globe.

Japan opened its war front and battle lines over German Southern Pacific Islands in 1914 and asked 21 codes in 1915 on China after occupation of Shantung peninsula in 1914, when Sakuzo Yoshino advocated thoughts of democracy. It was also the time of 4th Japan-Russia Treaty, by which Japan admitted the Russian Power in Outer Mongolia and Russia admitted the Japanese Power in Korean peninsula. It was the symptom of settling down frontiers among the United States, Japan and Russia on the Pacific Ocean, after the Japan-Russo War in 1910. It was the time of settlement of Japanese immigrants in California on the Gentleman’s agreement in 1908 and Anti-Japanese Law of Land in 1913 and opening of Panama Canal in 1914, just after opening of World War I. The establishment of League of Nations in 1920 promoted the Peace Treaty between German-Austria and the United States in August and among Japan-Britain-France-United States, the Pacific Treaty started in December 1921. At this time of mutation, Japan could develop its original and creative Technology and Science as was seen in the establishment of Physical and Chemical Research Institute in 1917. Due to rejuvenated sciences and technologies and war economy, Japan could develop unique Japanese sciences to synthesis of comprehensive one with practical one in the ruins after the World War II. Owing to helps of leaders in Asian countries, Sri Lanka between Europe and Asia, Indonesia on the southern periphery of Pacific Maritime Corridor and Taiwan between China and US, Japan could survive from the Ash.

Japan is now on the time of fundamental mutation, taking care of natural providence and wisdom. It was opened in Japan since the judge of Yokkaichi on Pollution in 1972 and successive Oil Crisis in 1973. It was accelerated by the floating exchange rate system in 1973. To overcome regional and international problems, the national and regional governments adopted serial legal eco-policies and cultural projects for revitalization of Industry-Academia-Government Collaboration’s context on Technopolis, Science Park, Brain Area, Research Core together with improvement of Hosting environment and soft infrastructures such as New Media Community, Tele-Topia, Intelligent city in accordance with the innovation of information technologies and software on the global scene. Through practices of these projects, the author mentioned several crucial points to succeed the sustainable developments in the author’s book and publications since 1989, the time of mutation toward age of Heisei (name of Japanese era, Age of Global and Regional Sustainability and Peace) and Declaration of Helsinki in 1967 based on the Declaration along the Nurnberg General Principle on Medical Ethics in 1947. It was also the time of liberalization of capital toward the liberalized world market.

Considering the locus of similar islands countries, Indonesia and Japan, etc., the covert of raw materials of Ajinomoto in Yokkaichi industrial complex from petrochemical products to agricultural materials again. It has been the iconography of industrial park with bird sanctuary. It ecologically connects the Ise Bay with the inland Suzuka hills, after the Judge of Yokkaichi Court in 1972 (Miyakawa, 2003). It forms the iconography among the collaboration contexts, Yokkaichi University, Yokkaichi Museum of Pollution, and International Center of Transfer of Environmental Technology. This status of economy enabled the global innovation not only of production technologies but also marketing strategies, taking much care of environmental pollution and environmental disruption based on the human ethics and natural providence in Indonesia and other developing countries, surrounded by the pollutions in the South China Sea. This sort of acid rain developed in these multi-islands countries. They are closely related with
earthquakes, volcanoes, tropical low atmospheric pressures, cyclones, dry lands and floods in designated areas, by international standardization of GPS and AI observation system (Fig.1-4; 1-5; 1-6).

It is worthy mentioned that this similar locus of Ajinomoto Plant is not only the symptom of innovative plant but also the symbol of evolution of Rejuvenated Civilization to improve regional habitats on the economy of status generated by I.A.G. collaboration, both in natural disaster countries, Japan and Indonesia. They enable the creation of new idea and science, innovation of advanced technologies and designs, incubation of venture and industry toward the sustainable Regional Renaissance with hard and soft infrastructures, although peripheries of Pacific Maritime Corridor have been suffered from pirates, sea robber, terrorists in multi islands (Miyakawa, 1998).

As for the innovation of sustainable development, we could not look over the locus and iconography in the region on the global scene. Namely, the Tangerang Selatan city, the Banten Province locates on the southern fringe of Jakarta Capital between the Soekarno-Hatta Jakarta Airport on the western fringe of the capital and the world heritage, Borobudur, the old capital with the largest Buddhism historic relics. This most excellent Mahaya Buddhism Arts with wall paintings covered by huge jungle illuminated the tolerance of same Japanese Mahayana Buddhism and the room of huge natural green. The tolerance of iconography and room of landscapes illuminated the similar Buddhism belief and the natural providence since the Ancient 8 century on the official introduction of Buddhism from Korea in 538 toward the founding of Heijo Capital, Nara in 710.

According to spiritual and natural orders, they developed not only the regional renaissance but also the rejuvenated civilization through their ancient IAG contexts. This Buddhism is a little different from the Hinayana Buddhism in Sri-Lanka and Myanmar, Thailand in Cambodia, although the natural providence and human ethics exert great influences on the local climate and spirit of local talent. They played important roles on the evolution of I.A.G. contexts and complexes, concentrated toward the world of nothing and the happy heart of Buddha on the historic icon and trunk.

This circle structure of world heritage shows the harmonized scenic landscape between the purified hearts of pilgrims through gates towards the top fifth cloisters where we could harmonize the human ethics and knowledge with natural providence and wisdom in the sea of forest under the eye and in the scenic beauties of mountains. This structure and system of world heritage have illuminated the basic invisible relations between the iconography and its orbit. This spatial and spiritual context exert a great influence on the hosting environments of creation of idea and sciences, innovation of advanced technologies and arts, incubation of venture business and industry according to the stage of development of relations among I.A.G. complexes and soft & hard infrastructures, especially within the propagated orbit of Buddhism and local economy.

This world heritage of Borobudur had been constructed in the ancient time between 780~830. It was the time of establishment of Shirendor Kingdom in 742, just after relocations of...
Japanese Capitals from Heiyo-kyo (Nara in 710) to Yamashiro Kuni (suburbs of Kyoto in 741), Naniwa (Osaka bay in 744), finally in Heiyo-Kyo again in 745. They reflected the expansion of orbit to accept the Buddhism and to concentrate again toward the traditional Japanese Shintoism under the politico-economic domestic discord. Borobudur, itself, had been conquered by the Hindu and Ancient Mataram Kingdom since 932 until its discovery. It was under the jungle in 1814, discovered by the local English governor T.Ruffuls and repaired by the new Dutch colonial government in 1907 and then by UNESCO in 1973, taking much care of its hard infrastructures such as drainage works. The Japanese Overseas Development Aid enabled the reestablishment of this iconography of Borobudur Historic Park not only for local and national people but also for all Buddhist in Asia and sustainable World in 1983 (Fig.1-7).

It is worthy to mention that the New Museum of H.Widayata, famous Indonesian decorative modern Painter, symbolized in Japanese Cherry Blossom in Nagoya painted in 1960. It expanded its periphery of orbit over Candi Pawon repaired by Dutch colonial government in 1903 and Candi Mendut on the straight line from the Borobudur and then evolved its cultural frontier by this art museum at the junction of highway. Between Jakarta and Borobudur, there is the memorial city of Pacific Bandung. It is the old capital of Sunda people and the most famous Academic Town, composed of more than 20 universities such as the Institute of Technology Bandung near the Bandung station and Husein Sastranegara Airport. It is connected with the second large central city, Surabaya, the home town of the first president of Indonesia, Soekarno (8 times per a day) with colonial towns, old city composed of Masjid Ampel Mosque on the Arab town and Chinese Buddhism temple in China town near the Surabaya seaport.

This airport is connected with Denpassar, the largest administration center of Bali Island (9 times per a day). It has the old city with global networks of airlines for sustainable tourism and tourism sustainability in Indonesia (more than 13,000 islands). From IAG context of G-local innovations, there is tobacco industry and museum, House of Sampoerna and the Japanese language course of Airlanga University which draws the Japanese guide map of Surabaya and become soft infrastructure of One-Seg project. Surabaya is also the cross-road of south eastern peninsular with the northern T.N. Baluran National Park, the southern T.N. Meru Betiri N.P. and T.N. Bromo-Tengger Semeru N.P. with Candi Panataran Temple, Candi Singpsari Temple and Candi Jago Temple, Candi Singopsan Temple around the Dutch hill resort town, Malang behind...
these sanctuaries. These sanctuaries illuminated mausoleums of ancient kingdoms based on the harmony of Buddhism and Hinduism, based on the Gunung Bromo, Penanjakan, Semeru mountains with the sunrise beauty scenery with God of Fire, even under the propagation of Islam in 16th century and the global natural and social changes.

Considering the creation, innovation, incubation of venture business and industry, we should find out expanding contexts and networks of key facilities for global innovation of IAG first, in addition to the evolution of hosting environment for sustainable tourism and tourism sustainability. Taking much care of this hosting environment for global innovation, the hot spring plays an important role of IAG complex town, like Japan. In Bandung, the Cipanas hot spring with more than 50 hotels, 2 hours far from Bandung by bus toward the Kampung Naga traditional village and Papandayan volcanoes. Bandung locates between this southern Cipanas hot spring and the northern Ciater Hot Spring Theme Park, surrounded by tea gardens with its southern beauty Tankuban Perahu volcano. It locates between the Western Jembatan Gikubang Bridge constructed in 1906, about half an hour by Express over the beauty valley, and the Eastern Jembatan Girahong double rail and road bridges constructed in 1893 within 3 hours from Bandung, and forms the typical zone of sustainable train tourism and its tourism sustainability. This metropolitan area generates the distinguished hosting environment and the soft infrastructure for Global Innovation, led by D1 factory of 19 P-airplane, N219, launched in 2018. It was the time of mutation for creation of idea and science, innovation of technology and design, incubation of venture and industry for evolution of renaissance, and rejuvenation of this old academic town on the global scene.

The other twin wheels with this Bandung academic metropolitan area is the eastern academic town Yogyakarta with the northern religious centers, the north eastern Prambanan and the north western Borobudur. Yogyakarta is the old capital of Hindustan Kingdom of Mataramu. They relocated from Matana to Bali under the strong pressure of Moslem propagation up to 90%. It is still the Dutch colonial central city of local, national, and international sustainable tourism & tourism sustainability at the cross-road of railways, highways, sea lanes and airlines under the Creole of cultures. Without saying, not only these transports hard infrastructures but also the soft infrastructures such as the language school of Indonesia, universities and museums, surrounded by the sustainable and spiritual resources enables the evolution of hosting environment of tourism sustainability. The old Kraton Castle built in 1756 has the twin guardian deities on the gate. It also generates its street culture of Pasar Sore Maliobor and Berigharjo. They enable the evolution of tourism and industry based on the economy of status as the author discussed in the sustainable tourism & tourism sustainability in the West Megalopolis in the United States.

The Batic dyeing, weaving, and printing cotton is a symbol of Indonesian art and design, generated in the Yogyakarta academic metropolitan area. It is a symptom of design and science, idea and technology in developing country, where is a leading university, which attracts foreign students, in the northeastern part of CBD between the Tung station and the Lempuyangan station near the Batic Research Center and Batik Painting Art Gallery and the Museum Affanci (modern Indonesian artist museum). It is the University Gajamada and University Seni (top art university) with Gajamada University Club that reserves rooms for international conventions. It is worthy to mention that there is a Museum Dharama Wiratama (museum of military) on the fringe of this area near the Lempuyangan station in the opposite eastern side of Benteng Verdeburg (museum of fortress) in the northeastern periphery of Kraton (Palace) with Museum of Karetta Kraton (museum of Carrage) near the Palace Langgeng Art Foundation on its southern tip and Museum Batik and Museum Anak Kolong Tanga (toy museum). These are iconographies for global innovation of advanced technologies, global evolution of excellent design on soft social and hard infrastructures with the eastern international airport toward Singapore, Kuala Lumpur, Jakarta, and Surabaya in Java Island and Denpassar in Bali. These international networks of airlines enable the innovation and evolution of 4th & 5th such as information and financial activities, administration and management industries, welfare and environmental industry, and cultural and education ones such as a Kedai Kubun Form with gallery of contemporary modern arts, dance performance hall and restaurant in the southern periphery of Palace near the aforementioned foundation.

Considering the time of mutation and the significance locus for regional renaissance and rejuvenated civilization in the orbit of global innovation based on the IAG context, Yogyakarta has the better hosting environment than Bantung Academic Town and Jakarta capital region with Tangaran Science Town. In this orbit of Yogyakarta, there are two northern ones, Borobudur and Museum Gunugapi Merapi (volcano) and two southern ones, Imogiri hills with tombs of first to ninth kings of Madaram Dynasty since 1645 and the Parangtritis to see the
beautiful beach on the Indian Ocean. In this orbit, there is the natural symbol of Indonesia volcano, Gunung Merapi and Dieng Plateau with Kawah Sikidang of geothermal power generation for sustainable development. Culturally, Borobudur is the world largest historic relic’s park of Mahayana Budhism, such as the Candi Kalasan temple since 8th century, within one hour and half by bus from Yogyakarta, covered often by volcanic ashes of Mt. Murapi as mentioned above. This Budhism Kingdom was relative by marriage with Prmbanan Hidu Madaram Kingdom in 9th century. The Candi Lolo Jonggrang temple constructed in 856 has been the harmonic iconography to synthesize Buddhism with Hinduism of Siva Shrine.

It is a symptom of national motto-Bhin-neka Tunggal Ika, unification of diversity in the multi-island country composed of more than 11 thousand islands, based on 5 symbols and Bahasa Indonesia, national language, which has educated and unified whole national peoples. This is an indispensable soft infrastructure that promotes the unification of nations as a whole and the global innovation of IAG context, like Japan. In contrast to developments of national and local soft infrastructures as KPPU for fair competition, hard infrastructure construction projects delayed more than expected, due to the lack of total management abilities and total risk management systems for regional renaissances. The delay of construction of Indonesia National Bullet Train project between Halim station in Jakarta and Bandung started in 2015 delayed already, because of air force strategy of cooperation between military and civil use in Halim Perdana Kusuma Airport and the rapid rise of land in spite of the Industrial Estate and National Railway sites in Bandung and the delay of total financial aids of China. As for the regional renaissance and renewal, there is not clear to re-vitalize IAG contacts with universities and industries and parks along the new bullet train line as are seen in the linkage with the University Katolik Parayanga Meldeka between the city hall and the transportation park near the Bandung station. From the Halim station, it also lacks projects to develop a new transport system with IoT ecosystem to reduce maintenance and management costs toward the International Airport and Tangalanga science city. This sort of cost-benefit re-examination of Trans-Java Train between Jakarta and Suravaya via Cirebon, which is the Chinese trade port town with three palaces to 2019 in 5 hours less than today’s 11 hours to learn several Japanese lessons.

It is the time of mutation to develop its orbit of IAG context to meet the global innovation and to develop the regional sustainable renaissance not only in the aforementioned Pacific Maritime corridor between talented Japanese and resourceful Indonesia. It caused the transformed megalopolis and metamorphosis of sustainable industry in the West Coast Megalopolis and the Tokaido Megalopolis over the Pacific Rim. It changed remarkably since the big earthquakes, at San Francisco in 1906 and then Tokyo, in 1923 under the war economy toward IAG context. Concerned with the global and local innovation in the industry-academia-government collaboration’s context, Cha and Miyakawa (Cha and Miyakawa, 2012; Miyakawa and Cha, 2015) illuminates the role of serial context among these industry, academia and government, taking much care of the role of society and community in the sustainable region of this sort of planning and practice. As for this illumination, more due regards to the locus, orbit and iconography of this region should be paid to develop better hosting environment and habitat for Global Innovation of I.A.G. serial contexts through sustainable tourism and tourism sustainability. Especially, at this time of natural and social mutation, we could not look over the heavy and sudden natural unexpected changes, the deep structural social and community changes in Japan, and war and terrorism in Asia on the global scene for sustainable rejuvenation.

2. MUTATION OF STRUCTURAL SOCIAL CHANGES AND METAMORPHOSIS OF NATURAL CHANGES

Considering the global Innovation of IAG contexts for sustainability, we should pay due regards to the sustainable society and the natural stability on the both global and local scene. At the time of social and natural mutation on the global and local orbit, we should take much care of sustainable iconographies and natural sustainable system for rejuvenation and recovery from disasters on the unification of present comprehensive theoretical science and effective practical science in Japan and Asia as a whole. Considering the regional renaissance and rejuvenated civilization for global innovation on industry-academia-government context, we should take much care of time of mutation, significance of locus, role of synthesizer, sustainability of hosting environment for creation of idea and science, innovation of technology and design, incubation of business and industry, and evolution of region and country such as CCS and other projects of OGCI and RE100 because of its geological and climatic changes.
It goes without saying that natural and social changes could not be overlooked to keep sustainability for global and local innovation as was seen in the big Kanto Earthquake around the Capital Tokyo in 1923, the times of serial strikes. In 1923, Professor Fusakichi Oomori (1868~1923) of Tokyo Imperial University, born in Fukui who took the research of Nobi Big Earthquake in 1891 and developed his modern science of earthquake and its practical observation methods and instruments. This Kanto Big Earthquake occurred after the Taiwan Earthquake in 1905, just after the Japan Russo War and the opening of Oou Railway on the Japan Sea, the use of wireless telegraphy, the San Francisco Earthquake and the opening of Submarine cable between Japan and U.S. in 1906. It was followed by the Mino-Oomi Earthquake in 1909 and establishments of World famous peripheral Imperial Universities, Tohoku at Sendai, Kyushu at Fukuoka in 1910, a year after the world famous Institute of Technology, Yonezawa in Tohoku in 1909. They brought about the Modern Industrial Revolution to meet with growth of munitions industries and IAG contexts on practical sciences toward the World War I and the establishment of USSR in 1917.

Another symbolic scholar was Dr. Jokichi Takamine (1854~1922) born in Ishikawa and graduated from today’s Tokyo Institute of Technology (former University of the Ministry of Engineering). He established the Institute of Jokichi Takamine in New York and then naturalization in the United States to develop new applied chemistry and its products. He helped to establish the National Science Institute (prototype of Physical and Chemical Institute) toward the synthesis of comprehensive theoretical science with effective practical science for sustainable neo civilization and global evolution, and expansion of traditional Japanese culture over the globe up to the present. In this time of mutation, the other leading institute, the Chemical Institute of Kyoto Imperial University in 1926, when Professor Masatoshi Ookouchi (1878~1952) of Tokyo Imperial University and the Director of National Science Institute invented pistons. He incubated more than 60 companies and formed its RIKEN Konzern, Japan Conglomerate Combination to smooth incubation of business toward the global innovation guided by this member of House of Noblemen. It was under the severe economic situation of financial crisis in 1927 at Tokyo and then in 1929 at New York under the strong pressure of US law of immigration enacted in 1924 and the strong Chinese resistance against Japan. These social and economic depressions with strikes promoted the war economy and global innovation of advanced technologies.

Without saying, the sympathies and synergisms of deep social changes with natural changes often cause the global innovation toward the rejuvenated civilization and the regional renaissances more than we expected as the author discussed in my paper; ‘Transformation of American Megalopolises and Metamorphosis of Pacific Megalopolis.’ The transformation of IAG context in the West Coast Megalopolis on the Pacific has been caused during the World War II. It resulted in the growth of munitions industries, especially the aircraft industry and then space industry. It encouraged the innovation of information technologies and software industry based on the innovation of financial and information industries, and the evolution of sustainable tourism and tourism sustainability. They developed the hosting environment and better habitat for the global innovation of IAG context. It brought about the evolution of cultural and education industry including film and event industry and special art colleges in one respect. This industry enabled to overcome the geological and climatic changes and develop the good habitat and beautiful landscape for better hosting environment and excellent life style as are discussed in the above mentioned paper precisely (Fig.2-1).

It is the most important point to make clear the regional renaissance and rejuvenated civilization in Japan for sustainable development on the global scene, focusing on the global innovation of industry-academia-government collaboration context, especially in the Tokaido Megalopolis, Japan. Theoretically, we could learn a lot of indispensable points to synthesize the comprehensive theoretical sciences with effective practical sciences. It is a matter of course that we take much care of not only hard infrastructure but also soft infrastructure, regarding the risk management to rejuvenate and to bring about the sustainable tourism and the tourism sustainability. The better habitat and hosting environment evolve the regional renaissance and rejuvenates civilization. It goes without saying to find out the best way to overcome the disasters and the problems such as the outermost Circular Highway of the Capital region in Japan to link the soft and hard mega infrastructures with each other in 2017.

We may quote a good example of comprehensive theoretical sciences with effective practical sciences in the innovative transformation of industries among the financial and information industrial revolution in the East Coast Megalopolis on the Atlantic and the information and financial industrial revolution in the West Coast Megalopolis on the Pacific via the Inland Pivot of mass production and mass sales in the orbit of Chi-
Fig. 2-1. Distribution of Megalopolis and Technopolis on the Global Scene

cago on the Five Big Lakes, linked with the Gulf of Mexico through the Mississippi River toward New Orleans and Panama Canal opened in 1914, the outbreak of World War I. Following spiral innovations of modern American industrial revolutions, the Tokaido Megalopolis has brought about the contemporary industrial revolution by welfare & environment and cultural & education Industries in the global sustainable market and society. They are brought about by the global innovation of advanced technologies and distinguished arts on I.R. 4.0 in a sharing millennium economy and innovative local culture, such as LOHAS in Silicon Valley and San Francisco in the West Coast Megalopolis and then in the Tokaido Megalopolis on the Pacific. It was clear after 1972 as the author reported in the anniversary symposium of Geography of Jean Gottmann, focusing on the transformation and metamorphosis, locus and role of megalopolises in AAG Annual Meeting in San Francisco.

Considering the significance of locus in the time of mutation, we should pay due regards to linkages of locations and their networks of networks, i.e. spatial structures of locations in a socio-economic market and politico-cultural orbit on the local, regional, national, international, liberalized world and regulated global scene, including its historical entity, controlled by different sustainable rules in each society and market. Without saying, the concept of locus has both a temporal and a timeless meaning, indicating a place in its relation with other places, naturally, politically, economically, socially and culturally. Moreover, a locus is a historical entity still alive and responsive to man. Man exerts a great influence on the metamorphosis of locus, closely related with evolution of culture in the local area and expansion of civilization on the global scene. Namely, man has to pay due regards to the natural wisdom and providence over the human knowledge and ethics, especially in the unstable country, like Japan, which often suffered from the natural changes and the social changes (Miyakawa, 1980a, b).

As mentioned above, it was opened in Japan since the judge of Yokkaichi on pollution in 1972 and the successive Oil Crisis. It was accelerated by the floating exchange rate system. To overcome regional and international problems, the national and regional governments adopted the serial legal plans and projects for revitalization of industry-academia-government collaboration’s context on Technopolis, Science Park, Brain Area, Research Core, together with improvement of hosting
environments such as New Media Community, Tele-topia, Intelligente City in accordance with the innovation cluster of information technologies and software on the global scene. Through practices of these projects, the author mentioned several crucial points to succeed the sustainable developments in the author’s books and publications since 1989. It was the time of mutation toward the age of Heisei and Helsinki Declaration in 1989 to keep the socio-economic and politico-cultural sustainability within and outside of the country and the Japanese community to keep ozone layers for abolishment of Freon gas against the climatic change to preserve natural environmental and ecological sustainability.

The other Declaration of Helsinki in 1947 was also important ethnical code and medical oath for doctors as the reflection on the clinical experiments on Nurnberg after the World War II. This sort of legal declarations by the international organizations exerted great influences on the mutation of global society, after the UN Declaration on Human Environment at Stockholm in 1972. It promoted the establishment of human rights and environment on the global scene and hosting environment toward better habitats with excellent hard and soft infrastructures. Under the sever control of social activities by the international legal organizations and the UN declaration on the global environment, especially climatic and natural changes at Rio de Janeiro played indispensable roles on the rejuvenation of global environments and global innovations through the UN Kyoto Protocol on Climatic Change in 1997 and Paris Agreement in 2016.

Considering the global natural and social sustainability, we should take much care of the legal order and rule according to the national and local law and international treaties and charter of international organization on the global scene through its international criteria and indicators. Without saying, not only the public laws and the legal rules and orders but also the private customs and criteria are obliged to pay due regards on the indicators of sustainability, focusing on the global economy of scale, scope, speed and status in one respect and on the other hand, taking much care of structural cradle, cracks, crisis, and collapse of rejuvenation system and shock-absorber structure. In the last stage of liberalized world market and society ruled by the law of capital, the international organization to adapt with the global warming and the global climatic change as was discussed in COP 21 at Paris in 2016. It was denied by the new United States president, Trump in 2017, although the California state government still preserves and leads its practical regulation rules on climatic changes toward 2020 and the neo industrial revolutions on the rejuvenated automobile and aircraft industry in its Western Megalopolis in rivalry with the Japanese Tokaido Megalopolis over the Pacific. It was not only the frontier between Japan and the United States, but also the border of multinational and multilayer of politico-economic, social and cultural powers as were seen between the United States and European Suzerain Powers since the aforementioned Treaty of World Dichotomy in 1492 and in 1529.

The dual borders and boundaries of this World Dichotomy on Satsuma and Tanegashima (Kagoshima Prefecture), Christians and gun, the new western religious iconography and modern western industrial technologies designated by the World Heritage of Modern Industrial Revolution at Meiji Restoration designated in 2015, in this southern tips of Kyushu islands, Japan. Considering transfer of technologies toward the global innovation at the next stage, we could not look over the industrial revolution and the regional renaissance generated in the trader and the present revitalized monastery, schools, related with the Christian lords on the global scene. These incubators, especially, in Kagoshima, Nagasaki, Saga, became the indispensable ones which exerted great influences on the development of modern industrial incubators in Kitakyushu over the Kannon Strait between the Kure Navy Yard and the Sasebo Navy Yard. They brought about the Institute of Technology of Meiji established in 1907, closely related with Yasaki Electric in the Chikuho Coal Field. It changed into the Government School of Engineering in 1921 and then to the National University in 1949. It is an indispensable synthesizer of contemporary industrial revolution complex for regional renaissance and global civilization. It is the symbol of global innovation and regional renaissance, owing to its locus and to its role of synthesizer in its orbit on the globe as the result of overcoming the problems of social and natural changes in Japan (Miyakawa, 2012).

It is worthy to mention that the role and character of synthesizer and its significance of sustainable development toward the global innovation during the half millennium after the World Dichotomy in 1529. It was the time of civil wars and the successive reunification and the isolation period up to the Treaty of Kanagawa with U.S., United Kingdom and Russia in 1854 when Shimoda was suffered from the strong earthquake, Tsunami in 1854 and the following big Edo (Tokyo) earthquakes and the establishment of school of Western Science and Technology and the House of vaccination in 1855, followed by the opening epidemic Cholera in 1858. This caustic
situation accelerated not only the import but also the global innovation of advanced technologies with exchange of foreign tutors and overseas students not only in the center but also in the above mentioned periphery. These IAG context accumulated the potential power and driving force for his original global innovation toward the next stage of regional renaissance and of global civilization, first in the powerful international market, and then in the liberalized world market on the law of capital and now in the global and ecological socio-market, taking much care of natural providence and wisdom for sustainability.

Due to the present global warming, the climate of North Pole and Arctic Ocean excretes great influences on the global change and warming as well as the change of jet stream and tropical atmospheric depressions and ocean currents along the tropical zones as a result of parcel perspective. The Bering Strait becomes an indispensable observation zone for global sciences and practical engineering in the polar and frigid zone in response to the regional renaissance on the North Pole. It was discovered by Dezenzer in 1643, 700 years after the Iceland immigrants and then Denmark Viking in 982. Then Russian Denmark Bering investigated this straits in 1725~30. After the independence of United States in 1776, they decided their border according to the Pacific Treaty in 1824 and after a century it became an indispensable center of IAG research collaboration center MIZEX led by the American Navy since 1983, when Japan opened the Seikan Tunnel under the Tsugaru Strait and suffered from the Central Japan Sea Earthquake. In this year, Japan finished its scientific role of investigation of the Southern Pole by its investigation ship, Fuji and lost its best timing to develop its fronts of neo civilization and neo industrial revolution on the Poles and surrounding oceans’ sciences, in spite of its designation of Northern Territory Day in 1981 together with IAG contexts in surrounding countries on the North Pole (Miyakawa, 1998).

It goes without saying that the synthesizer of long range project on IAG context in the time of mutation and the indispensable locus for promoting projects, we should take care much of the international collaboration of basic science, first and then advanced technologies for instruments of investigation and observations toward the global innovation of technology, incubation of venture business, and evolution of industry. These industrial and technological frontiers toward the global innovation had been developed in Japan at the time of Meiji Restoration through the international commercial treaty with U.S. It brought about the foundation of future Keio University by Yukichi Fukuzawa (1835~1901). He learned his Dutch learning in Osaka from Koan Ogata and then opened his own school at Edo in 1858 and develop English and German learning in the three times dispatched delegations of Edo Shogunate in 1860,61,67. He established his Keio-gi-juku, private school in the opening of Meiji Restoration in 1868, and published his book, Outline of Civilization in 1875. It resulted in the indispensable private university of modern Japanese civilization to synthesize the comprehensive theoretical science with effective practical sciences to incubate venture businesses. Since then, this academic tradition always promoted the creation of idea and science, incubation of venture and business, innovation of technology and industry, and evolution of regional renaissance and rejuvenated civilization, as will be mentioned after such as Morimura Brothers, today’s Noritake, NGK Insulators and NGK Spark Plug in the Nagoya metropolitan area and TOTO in Kitakyushu, Japan in response to the global innovation of technologies and industries to adapt with sustainable life styles. As for the global innovation of sustainable development, we could not look over the invisible locus and the iconography of academic tradition with the structure of industry and the system of government, paying due regards to the local climate of academic town not only in the capital region but also in local orbits (Miyakawa, 1998).

The construction of Circular Highway of Capital region in 2017 enables the synergisms and synchronism of hard infrastructure and soft infrastructure as is seen in the close relations between the Tsukuba Academic Town and the Narita International Airports, under the smooth cooperation and collaboration among the universities and their satellite campus such as the Kashiwa Campus of Tokyo University, along the newly opened Tsukuba Express from Akhhabara via Kashiwa. It becomes the new huge global hub of the IAG contexts with two international airports, Haneda & Narita. They promote the global innovation, more than we expect. The construction of Central Linier Railway between Shinagawa, Tokyo and Central Nagoya in 2027 will be linked within 45 minutes. It already enabled establishments of Nagoya Central Office of Micro-Soft and its Tokyo Head Office at Shinagawa in 2016, closely linked with its head office at Seattle and the world wide offices and plants of Toyota Motor group on the global scene like the nerves and the brain. The time lag of opening new bullet between Nagoya and Osaka and the construction of new Shinagawa station of JR East will be exerted a great influence on the urban renewal of Shinagawa and Tokyo.
Capital region as a whole. This will evolve global airports and seaports complexes in the Tokyo, Nagoya, Kyoto, Nara, Osaka, Old and New Capital Regions complex along the new highways in the strategically evolved and expanded sustainable Tokaido Megalopolis, the Central Japan Global Megalopolis up to 2068. It will be expected the global sustainable incubator of neo comprehensive contemporary civilization on the revitalized traditional Japanese culture, paying due and more regards to natural providence and wisdom than ever.

Considering the innovation on the global scene in multi island country, suffered much from aforementioned natural and social changes, Indonesia, the developments of regional resources and the constructions of hard infrastructures are, without saying, important on the fringe and the counter power of Pacific Maritime Corridor, paying due regards to the evolution of R&D activities based on the improvement of talents and development of ability, as we discussed the original and essential roles with in the United Nations University (Miyakawa, 1998). Concerning global and local innovation among IAG Collaborations’ context, the author has reported two papers in the World Technopolis Reviews, vol.1 in the case study of rejuvenation of declining industrial city Kitakyushu in 2012 and about the general theory of author in Vol.4 (2015) on the roles of the university and paradigm toward creative global open innovation toward the neo civilization with natural basic advanced technology based on natural providences and natural wisdom, by means of IoT in the sharing and millennium economy toward the sustainable and effective ones on the historical entity and the traditional local climate. These movements bring about the Hanover Declaration of Japan and German Governments on IoT and AI in 2017. In this paper, the author wants to illuminate the role of synthesizer i.e. serial context among these industry-academia-government collaborations, taking much care of the role of synthesizer and coordinator in the community and society in the regional planning and project, first. As for this illumination, we should pay more due regards to the locus of this region on the global scene to develop better hosting environment and habitat in the traditional local climate and culture of the orbit. Especially, at this time of natural and social mutation, we could not look over the aforementioned heavy and sudden natural unexpected changes, disasters and the deep structural social and community changes.

The East Japan Earthquake with melting down of nuclear power stations on the Pacific in 2011 was this typical example on the global scene for sustainable rejuvenation toward Fukushima Innovation Coast Project (Fig.2-2).

As for this theoretical and practical scientific analysis, we should take much care of the orbit of iconography on particular locus and role of synthesizer in relations with natural and social changes and their own regional shock-absorber structures and rejuvenation systems as are seen in the serial projects promotion and evolution of World Heritages and I.A.G context in the northern part of Japan over the International Tsugaru Strait (Miyakawa, 2011).

Considering sustainable developments on the global and local scene especially, after the end of World War II, the rapid increase and raging agglomeration of population with diversifications and growth of net order circulation and logistics should first be illuminated. Not only the number and the composition of population but also the regional distribution and the immigrants including refuses exert their influences on the sustainable rejuvenated civilization and the regional renaissance sustainability in Japan, like the West Coast Megalopolis led by sharing economy in Silicon Valley, the rejuvenated EU Megalopolis generated by the Industry Revolution 4.0. in Germany and the Tokaido Megalopolis, Japan, revitalized remarkably by the neo contemporary industrial revolution in the global market and Society toward the millennium economy by Neo Civilization, and then the multi-island differentiated country, Indonesia, etc.

It goes without saying that the growth of economy and the sustainability of society are largely influenced by the increase of population, the change of composition, the growth of capacity building and the stability of community. They, in turn, played important roles in the regional renaissance and rejuvenated civilization, owing to the economy of agglomeration, scale, scope, speed and status and, stability, security, safety and sustainability with shock absorber for the predictable Natural and Social Changes. In this situation, the sustainability has become the indispensable problem for human beings, not only in the world but also in the region, especially since 1972. It was the time of United Nations Declaration on Human Environment at Stockholm and the time of UNSCO adopted the World Cultural and Natural Heritage Treaty. They illuminated the mutation, metamorphosis, change and transformation of age and time, since adaptation of sustainable indicator examinations and W.H. in danger since 1982. They are also indispensable points of view, when we consider the locus of regional renaissance and the role of innovation of civilization for sustainable development on the global scene. In other words, they are symptoms of changing time towards the sus-
tainable development, creation of idea and science, innovation of technology and design, incubation of venture business and industry, system of R-production and sustainable style of life, such as LOHAS with better hosting environments in the sharing economy and present millennium economy. The metamorphosis of West Coast Megalopolis and the transformation of American Megalopolises illuminated the typical examples of these changes, as the author made clear in the lecture and comments as the chairman of special panel discussion on the centenary of Jean Gottmann in the annual meeting of A.A.G. conference and University of Stanford in 2016. The author also made clear this metamorphosis of megalopolis and mutation of advanced Silicon Valley in my latest academic paper.

The growth of Tokaido Megalopolis and its structure had been formed originally by the construction of Kamakura Kaido, between the former and capital of Kyoto and the administration center of Yoritomo Minamoto Shogunate in the opening of feudal administration system in 1192. In spite of long and diversified feudal administration from Kamakura Bakufu, Nan-Poku Chou (co-existence of politico-cultural iconography Shogunate and Emperor) within the same old Kyoto Capital Region (Kinai Orbit centered at ancient old Capitals of Emperor powers) and Yoshino & Muromachi Period, Azuchi-Momoyama feudal ages toward the relatively stable and long isolated age from 1641 to 1859, when Japan opened its international ports, two peripherals, Nagasaki (only one directly controlled international port of western tip of Kyushu island for Dutch and non-Christian Chinese), Hakodate at the southern tip fortress town of Hokkaido Island and the central international port, Kanagawa on the western periphery of the Edo (Tokyo) metropolitan area near today’s Yokohama.

Owing to these traditional local climate and culture for this long centenaries and farsighted policies in the feudal ages, the

Fig. 2-2. Innovation Coast Project
Source: Fukushima Prefecture (accessed at July 24, 2017)
historical entity of locus and of community exerted great influences on regional renaissance and rejuvenated civilization in Japan for sustainable development, focusing on the industry-academia-government collaboration’s context through global innovation. Therefore, not only this excellent traditional spirit and skill, but also creative ability of idea and innovative style of life and training enable the capacity building for incubation of new product, venture business and industry. Without saying, the traditional products, themselves, enabled the business sustainability and development of sustainable business as are seen in the long life and old standing companies over the two centuries, such as a member of Les Henokin, established in 1981, not only the Japanese cake maker, such as Toraya, Tokyo and Akafuku, Ise but also timber company, Zaiso, Nagoya and steel processor, machine producer and dealer, Okaya Kooki, Nagoya. Masashichi Nakagawa Linen shop, Nara. It is worthy to mention that the indirect governing port, controlled by the Satsuma clan of the southern tip of Kyushu Island, a peripheral rival against the central government, Edo, between the Ryukyu Kingdom and the Edo Shogunate exerted a great influence on the illegal international trades along the active international trades between Japan and China and between Japan and ASEAN. These sea routes were developed by the official visits to Chinese dynasties, and international trades routes toward Korea, China and ASEAN, international Buddhism ascetic exercises and official visits over the Indian Ocean by the official delegates to Vatican, dispatched by the three Christian lords in the northern part of Kyushu island (1582~90) and dispatched by the Date lord (1613~1620), a last rival against the Tokugawa Shogunate, who promoted the ban of country.

In addition to official visit routes, illegal visits and trades routes, together with Japanese villages formed the basic structure and prototypes of Shyanghai, Chinese Coastal Megalopolis and quasi ASEAN Megalopolis, among Japan and India, resources countries, Russia and Australia, owing to growth of their pivot of fair trades and sustainability. It is a future quasi South China Sea Megalopolis, composed of local and global sustainable cities for rejuvenated civilization. Not only the population and its compositions but also the functions and structures exerted great influences on the function of rapid innovative growing global cities, as is seen in the case of Singapore, Kuala Lumpur and Jakarta, Macao, Hongkong and Hainan, Manila, constellation of quasi global cities with sustainable and comfortable habitats.

3. EVOLUTION OF ACADEMIC TOWN IN MEGALOPOLIS AND REVITALIZATION OF TECHNOPOLIS

3.1 Sustainability of Habitat and Mutation of Yokkaichi Industrial Complex

The sustainability of habitat has been suffered from not only socio-economic changes, such as industrial and traffic pollutants, but also geological and climate changes. In Japan, it was made clear in the judge of Yokkaichi court in 1972. It was founded guilty of murder not only to industrial corporations according to the law, but also the national and local governments and peoples to promote the cool regulation and smart management of air, water and land pollution in addition to daily observation of local community together with local and national societies and organizations, NGO, NPO, and observation system.

Consequently, the local community plays an indispensable role in the change of climate and opinion. These socio-cultural changes synchronized with politico-economic changes such as the Oil Crisis and the Liberalization of Exchange Control in 1973. This synchronism brought about the synergism, sympathy, syncretism and synthesis in the petrochemical industrial complexes constructed by foreign companies towards the liberalized world market and society after the World War II, led by multi-national oligopolistic companies. Especially, the special procurements boom after the Korean War in 1950 accelerated the rapid socio-economic revival and growth on coastal estates.

It was illuminated in the development of Nishou-Mar, oil tanker of Idemitsu-Kosan from Iran, a rivalry with the U.K. and Dutch oil company, Shell. It was originally established in 1896, just after winning the victory of Japan-China War and Sunraku Big Tsunami. Today’s Showa-Yokkaichi-Shell merged with Saudi-Ara-com and then domestic Japanese oil company, Idemitsu-Kosan established after the end of World War II. Shell was at last merged with Idemitsu-Kosan and closed its unique independent domestic management in 2017. It becomes the leading multinational and synthetic energy complex in Japan as a result of the global innovation of technologies and metamorphosis of market structure such as co-generation in the agglomerated CBD and smart and cool housing and industrial estates with new natural energy such as solar panel, wind power, geothermal and the others under the cogeneration and smart grid.

The role of synthesizer is important as a great communica-
tor and excellent manager, negotiator to enable the creoles toward the new age not only in the liberalized world socio-economy but also in the politico-cultural global sustainable community, closely related with universities. This international competitive oligopolistic industrial structure exerts a great influence on the air and water pollution designated area including the communities of popular movements against the pollution problems and the Municipal Future Environment Museum established in 2015 near the Municipal office becomes the strong and sustainable iconography to preserve popular movements against the pollution and toward the sustainable community on the globe (Fig. 3-1-1; 3-1-2).

It is the symptom of mutation of industrial structure and system change, within the coastal agglomerated petrochemical and electric power industrial complexes on the global scene. They were obliged to change the production system to reduce the air and water pollution and to keep the sustainability of industrial complexes under the strong popular movements and social regulations towards the better and green smart habitat on the global gateway of green tourism toward the Suzuka Mountains and refreshed blue coast with developments of Methane Hydrate since 2014. In this movement, Ajinomoto changed its raw materials from petrochemical ones to agricultural one such as maze and organic sugarcanes in its inland Yokkaichi Plant with better hosting environment of bird sanctuaries between the Ise Bay and Yunoyama hot spring area. This movement urged developments of Bio-Top on the Convention on Biological Diversity Treaty in 1992. It developed serial Natural Ecological Parks over the rejuvenated industrial complex expanded of Kasumi modern container terminals and Kawagoe electric power stations and gas pipelines over the Nagoya Sea and Air ports with leisure LEGO land, big shopping area and new bio energy R&D without petrochemical ones, at the global cross-road with clean energy stations by 2030.

A strategic series of MICE had adapted and readapted with historical changes toward establishments of new iconographies as the World Design City, Nagoya since 1989 and Biennial. It changed its hosting environment to expand the Nagoya metropolitan area. It enabled the development of automobile parts makers such as Sumitomo Denso and other subcontractors for Honda Motor in Yokkaichi and Suzuka on the economy of agglomeration and synthesis of soft infrastructures of

Fig. 3-1-1. Special Development Area and Network System of Electric Power

Source: Miyakawa (2003), p. 30
global innovation of IAG context with development of hard infrastructures such as the circular highways. This rejuvenation of energy complex has been occurred by liberalizations of market and sustainable society to stop the nuclear power (28.6% in 2010), along the Basic Environment Law in 1993 and the liberalization of electric & energy market since 2000. It also brought about global smart and cool new energy companies on sustainable natural and recycled power resources not only on solar and wind but also drainage and waste.

It expanded toward the smart complex and cool habitat, with the southern Suzuka automobile industrial complex and the northern Kusawa new material and parts industrial complex such as Neuron tip Toshiba and Bearing NSK etc. on the western fringe of Nagoya Metropolitan area. It developed, in contrast to the eastern NMA, led by Toyota Motor and Toyota Home (housing company), closely related with Misawa home to be the oligopolistic leading company against the leading Panasonic with Pana-home. Owing to the development of instrument for plug-in-hybrid, as a result of global innovations, they create new idea and science for cool & green habitat and innovate their high advanced technologies and excellent scenic designs and then incubate new business and industries as a result of these serial IAG contexts, toward better habitats.

In response to the liberalization of transaction and the innovation of technology, Yokkaichi introduced the International Institute of Transfer of Advanced Technologies for Improvement of Local & Global Environment (ICETT, 1989, originally R&D institute of Global Environment). It, thus, became the symptom and the gateway of the Global Human Environment, taking much care of human welfare and human rights. Consequently, Yokkaichi became the global center of environment industrial R&D and training center of Japan on the global scene, together with the eastern center for training of environmental skill and technologies promoted the municipal government, Cool and Clean City Toyohashi under the slogan of 530 (0 Waste Movement) and Obu Forest for Health with R&D Institute of Long life Science in 1987 like Age Lab of MIT (Fig 3-1-3).

Namely, it is important for local and global innovation toward the better habitat of sustainability that the good timing of mutation of Yokkaichi Industrial Complex with the better locus of sustainable habitat since the legal judge in 1973 not only on the local but also on the global scene. In addition to the time of mutation, we could not look over the heavy damage of Ise Bay Typhoon in 1959 in succession of Kanogawa Typhoon,
Izu peninsular, Shizuoka within the same Tokai region in 1958 (Fig. 3-1-4).

It was also the same time of national and international social changes, occurred by the opening of Tokaido Express train from Tokyo to Osaka via Nagoya and Kyoto in 1958, followed by the Tokaido Bullet Train in 1964, just in time with the opening of Tokyo Olympic. It was a decay after the Tibet riot and China-India border conflicts and Japan admitted into OECD and the Article 8 Country of IMF toward the Capital Liberalization in 1967. It was also the time of pollution occurred by the high economic growth brought about by soft infrastructures such as IAG contexts against pollutions.

In short, considering the global innovation led by the IAG contexts on global and local pollutions and sustainability, at present we should take much care of global natural and social changes and their synthesis led by local popular movement and local community itself. They brought about the regional renaissance and rejuvenated civilization on the global scene, especially after 1973. In response to the rapid growth of economy and agglomeration, we should pay due regards the evolution and the expansion of megalopolis and its metamorphosis from the legal and cultural sustainable point of views. As a result, it could develop the better habitat for capacity building and for development of effective natural and human practical science and popular movement to generate local climate of community on the close IAG context.

3.2 The Metamorphosis of Megalopolis and Development of Neo Civilization

Considering the global innovation, we should take much care...
care of fair and impartial character of investigator on the legal test and scientific examination of industrial outputs. Owing to their loci, National Universities, especially, the former 7 Imperial universities established before World War II, play important roles more than central & local governments and institutes for the official tests of industrial outputs, together with other private universities and institutes and international ones on the global scene. Especially, disasters caused by the natural and social changes become severe and severe more than we expect. Therefore, these criteria and indicators for sustainability, the historical entity of locus and the indispensable role of synthesizer for investigation and for promoting projects have been to make clearer and fair, more than expected before.

Not only the idea at start but also the field tests for public acceptance by the demonstration prove test substantive experiments. It becomes popular to get public certifications for new products, notwithstanding the increase of recall on legal and ethical responsibility and natural and social sustainability. In these tests, the university plays an indispensable important role, owing to its authority and public confidence and reliance in the aforementioned context such as Tohoku, Kyushu, and Nagoya. The on-demand bus test in the Aichi Expo in 2005 led by Toyota Motor and the test led by Tokyo University in Kashiwa Campus between Akihabara and Tsukuba and in Sakai between Osaka and Kansai International Airport by NCSDA are these typical examples. Based on these examinations, Toyota city established the Toyota City Low Carbon Social System Demonstration and Proving Test Conference. It started tests on 24 parking and car sharing in Tokyo in the orbit of Toyota Motor. It illuminates the importance of role of society and locus of community, in the smart & cool city on the global communication in the aforementioned Sendai-North Techno-polis, Kitakami River Techno polis and Koriyama Techno polis started in 1982, with local industries.

These sorts of proving based on the society and the community on the global scene expands serial contexts on the global scene as we could recognize next generation cars (EV, PHV, Hydrogen etc.) for reduce the carbon in the change of climate and the AI test for automatic driving on roads on the global scene, where Toyota City is suffered from the natural change, Tokai Big Earthquake, since the Ansei Earthquake in1604, 1707, 1855, and today’s cautions since 1976 and its related laws with its final report in 2001. This area has the best locus where Toyota Motor will develop the practical and comprehensive scientific, technological, business and industrial social investigation, entrepreneurship as is seen in the establishment of 6 venture companies, together with Tier Four and Nagoya University in 2016. It accelerates the academia-industry-government collaborations context toward open innovation for sustainable developments. They resulted in the rejuvenation of agglomeration area, especially the Tokaido Megalopolis as is seen in the collaboration between Toyota Motor and Osaka Prefectural University, owing to the potential ability and good access.

Considering these kinds of social soft infrastructure, we should take care of mutation of production system and life style. These are closely related with the structural socio-economic changes in accordance with the increase of community and society composed largely of elderly people and the regional renaissance. They were closely occurred by the rejuvenation of civilization and revitalization of Industrial Revolutions. In short, the context between community and society become the key for solutions of present scientific subjects and practical problems. In Japan, we could not look over natural changes, especially geological changes such as heavy earthquakes with Tsunami, volcanic explosion, landslide and climatic changes such as the global warming and concentrated heavy rains and typhoon, tsunami and heavy flood in 2011 since the Sumatra Earthquakes with Tsunami in 2004. The two giant countries, United States and China ratified the Paris Treaty to adapt with global warming in 2020, an opening year of Tokyo Olympic, just a year after the Kamaishi World Cap, although these two giants have not kept structurally strong fair sustainable policies and socio-cultural human ethics and natural providence on global warming and nuclear powers.

The association and fusion of serial properties and resources in the region are the key points of discussions, with historical polymerization and spatial integration in this context, taking much cares of serial and sequence of earthquakes as is seen in the case of Aso, Kyushu and reoperations of Nuclear Power stations in 2016. Considering the regional renaissance and rejuvenated civilization in Japan for sustainable development, we should pay due regard to the global innovation, focusing on the academia-industry-government collaboration’s context to keep fair criteria and indicators for creation of unique idea and comprehensive theoretical science and effective practical science and innovation of technology and design, incubation of business and industry toward the evolution of regional renaissance and rejuvenated civilization toward the sustainable development with flexible risk management system and shock absorber structure based on the synthesis of hard infrastructure with soft ones in the better habitat on the global scene, led by Nagoya University on the global scene.
The automobile industries have been improved by clean engines and technologies in one hand and on the other hand, latest technologies, IoTs, enabled the mutation of industrial structure and the metamorphosis of better life style and habitat. They are closely linked with the cool and smart habitat and life style of production system, LOHAS and social business, especially in the rejuvenated green community, R&D Lab, Kariya. As we can recognize easily the mutation of automobile industry, adoption of 58 smart and beautiful round-about system in 2016 such as that of Fuji Mountain World Heritage and of housing and robot industries in the new expanding orbit of Toyota Motor and Toyota Home with cool and smart Japanese life-style in the Tokaido Megalopolis on the Pacific.

The UNESCO Intangible Culture Treasure also is an iconography for establishment of brand of new product, which was developed in the Indonesia excursion of Development Economy Seminar of Dokkyo University in 2015 to develop the reversible insecticide sheet for Toto Back made of UNESCO Intangible Culture Treasure, Hosokawa traditional Japanese paper, designated in 2014. It was needless to say that it became the impressive iconography of opening the neo civilization to fuse advanced technologies with excellent designs. It created the new environmental and welfare industries based on the neo spirit of age and opening of new life style, such as LOHAS (life style of health & sustainability). It generated the global culture and local climate of Global Environment and Ecology on the economy of status. The United Nations Declaration on Global Environment at Rio de Janeiro in 1992 was the symbol of this new age of neo civilization and neo culture, taking much care of natural wisdom and natural providence, especially in Silicon Valley, Western Megalopolis on the Pacific in rivalry with East Coast Megalopolis and then the Tokaido Megalopolis on the Pacific.

In 1997, the Kyoto Protocol of Climatic Change of UN was the first step toward this age. It is a matter of course at the time of epoch toward the New Age on the globe. The relocation of Agency of Culture, Ministry of Education to the old capital, Kyoto in 2017 will be the new iconography for evolution of Japanese traditional culture, taking much care of natural providence and wisdom in the establishment of Sport Agency toward the Tokyo Olympic in 2020. These two Agencies, culture and nature are the twin wheels for driving the comprehensive theoretical science and the effective practical science on the serial context of IAG and popular movements.

The rejuvenation will have to be accelerated by the proposal of nomination of rural Northern Archeological sites of Johmon culture in Iwate, Akita, Aomori and the southern tip of Hokkaido in 2017 in contrast to revitalization of old capital based on the World Heritage of Cultural Assets, Kyoto in 1994 when a year before the Hanshin Earthquake. The historical entity and serial association between culture and civilization exerts a great influence on the evolution of new age with transfer of place and conversion of dimension. It becomes popular as a result of Dynamic 3D Map for car. This SIP revitalization was also promoted in the hosting environment of the World Heritage of Cultural Assets, Nara in 1998. It was based on the World Heritage of Buddhism Buildings in 1993. Then, we should pay more due regards to the World Heritage, Sacred Place, Kii Mountain and Worship road, designated in 2004.

The World Heritage of UNECO is an excellent site to create the universal value for regional evolution of traditional culture and global innovation of latest civilization. Concerned with the evolution and the innovation, we often look over the importance of the locus of place and the role of megalopolis on the global scene, especially for the regional renaissance based on the historic entity as is seen in the site of World Summit, Shima Island. It locates in the traditional coastal food supply region for the Ise Grand Shrine, the sustainable and spiritual iconography in Japan. It locates in the Ise-Shima National Park and the first designated International Resort, Mie Sunbelt zone according to the law issued in 1987 which has the better hosting environment and habitat for global innovation of Japanese civilization. On the global scene, Ise is the most important and indispensable shrine of Shintoism with more than 1000 years' history, where the all leaders of 7 countries first officially visit and worship together. These world political leaders felt and recognized the importance of natural providence and natural wisdom for present human civilization and sustainable culture. Consequently, Ise provides the soft center of not only the domestic hosting environment but also the international, world and global hosting environment for sustainability based on the status of economy to synthesize the global sustainability and the global innovation for development of contemporary sustainable civilization, paying due regards to the natural providence and the natural wisdom.

Then, the synthesizer, Shinzo Abe also guided the former president, B.Obama. In succession, the President visited the Hiroshima Atomic Bomb Dome to pray for the world peace, which induced the visit of Prime Minister Abe to the Pearl Harbor, Hawai within 2016, before the election of President of United States in 2017. Hawai has been the pivot and hinge between the West Coast Megalopolis in the United States and...
the Tokaido Megalopolis in Japan over the Pacific. Owing to this locus, the King visited Japan in 1881, when the Meiji Restoration government decided to open the Diet, close to the Imperial Palace in Tokyo. In spite of its independent policy, Hawaii was annexed with the United States in 1898, when New York organized its municipality in 1898 with 3400,000 populations, the center of the East Megalopolis. It became the step stone for declaration of Open Door Policy to China in 1899.

Under the severe conflicts between them in a hundred years, Japan wants to redevelop the Pacific Rim in addition to its Corridor with the sustainability of habitat and global innovations again to overcome, political, social, cultural and economic problems under the keen competitive co operations, before and after the World War I and II, toward the regional renaissance in the Tokaido Megalopolis and the rejuvenated sustainable civilization, paying due regards to the deep ocean and the universal space comprehensive theoretical science and effective practical science. Both countries take much care of social changes and natural changes along the first war front defense line from the Japanese Capital, Tokyo on the Pacific Deep Ocean Trench and the second defense front line from the southern periphery, Kagoshima, which covers the South China Sea toward the Continental Shelf. They give a strong stimulus to the recent global creation of idea and science, innovation of technology and design, and incubation of future ocean and space private business and industries.

3.3 Revitalization of Creative Kyoto and Rejuvenation of Kansai Science City

Kyoto had been the old capital of Japan within the Kinai, on the fringe of Tokaido Megalopolis, composed of old capitals, Asuka, Nara, Naniwa, Otsu and Kyoto. These old capital areas had developed the creative hosting environment of present cool civilization led by Kansai Culture and Academic Town according to the law in 1987 in the clean culture of World Heritage of Kumano old roads on the Yoshino-Kumano National Park.

The construction time table of Kansai Science City changed from the pure science city with R&D institute and university to the complex smart city with factories and small business context. It has been accelerated in 2016 by the new decade Development plan for Open Innovation of Research complex by the Kansai Culture, Science, and Research City Promotion Organization. For this purpose, it promotes the open collaboration of Panasonic with NICT and the foreign researchers (219 in 2014) with foreign staves in its surrounding old capitals. It shows the importance of academic community on the local scene with face to face contacts more than that of society on the global scene (Fig. 3-3-1).
It was designated as the World Heritage, together with Holly Lands in the Kii Mountains in 2004 between old capitals and the Ise Grand Shrine on the eastern tip of Shima peninsula, where we held the World Summit Japan in the traditional Japanese culture and nature, 2016 toward the sustainable Pure Land under the Sun & Moon. Its coordinator, Prime Minister Shinzo Abe gave the caution of economic shock such as the former Lehman Shock in September 2008 and the politico-cultural as is seen in the relocation plan of Cultural Agency from Tokyo to Kyoto. This socio-economic crisis caused by international terrorism in 2016 brought about the diversification of the European Union and the United Kingdom, which changes global finance & information.

It formed the fringe of orbit of Ise Grand Shrine in rivalry with the gateway of Ise Kaido (road), Kuwana port near the mouths of Kiso Three Great Rivers. It is still connected with the symbolic shrine, Atsuta, dedicated one of the three Imperial Treasures, Sword (with Mirror in Ise Shrine; Jewels in Imperial Palace) in Nagoya on the northwestern frontier of Yokkaichi Neo Industrial Area. It is the iconography of global innovation of traditional sword production area and the advanced steel production, such as Aichi Steel (former Toyota Steel). Among the old capitals with the Ise Grand Shrine and the Nagoya Great Metropolis, the other proposed new capital area, Kiou based on the Law in 1987 and expected the construction of new station of Linear Express up to 2045, the time of Singularity, if possible up to 2037. It is in contrast with the other Tono New Capital area on the Gifu station of Linear Express in the northeastern frontier of Nagoya Metropolitan area up to 2027. It will connect Nagoya with Tokyo in 45 minutes.

![Fig. 3-3-2. Capital Relocation Plan](https://doi.org/10.7165/wtr17s0904.16)

Source: Miyakawa (2003)
infrastructures and evolved the regional structure and regional renaissances in the World Heritages and Megalopolises over the Pacific (Fig. 3-3-2).

The Tokaido Megalopolis becomes the great incubator of neo industrial revolution and civilization, taking much care of global environment and human welfare industries on the new spirit of neo culture. It creates the new idea, science, technology, industry, economy and society, paying due regards to the natural providence and wisdom on the global market and society of ethical consumer, customs, and laws through fair-trades. This neo civilization and regional renaissance is, based on the information and financial industrial revolution in the West Coast Megalopolis centered at San Francisco on the Pacific and on the financial and information industrial revolution in the East Coast Megalopolis centered at New York on the Atlantic. This economy has been evolved rapidly by the growth of 5 Great Lakes Megalopolis centered at Chicago the center of trade and transaction based on the liberalized world market and society.

The origins of Tokaido Megalopolis were linked with the diversification of state system; separation of administration center of power at Kamakura from the symbol of authority at Kyoto, linked with the Kamakura road constructed in the late 12 century in response to the expansion of their territories. The Tokaido between Kyoto and Edo (Tokyo) was completed in 1601 with post towns and wholesale districts in compete with the coasters on the Pacific and on the Sea of Japan between Osaka and Edo. Tokaido became the great incubator of modern industries, imported from the United Kingdom and Germany based on the challenging spirits, imported modern sciences and technologies from Portuguese and Spain through Tanegashima and Kagoshima and then the only one open international port, Dejima of Nagasaki at the peripheral island, Kyushu. It cultivated its unique open culture of incubation and evolution of new art and technology business through the World Flower Garden Show at House Tenbosu, Nagasaki in 2016. It gradually causes the conversion of locus on the Japan Sea, according to the revitalization and redevelopment of East Siberia and North Pole area.

4. THE CREATIVE LOCAL CULTURE OF THE WORLD HERITAGE AND THE REGIONAL RENAISSANCE

The 23 serial properties of World Cultural Heritage of Modern Industrial Revolution at Meiji Restoration were designated in 2015. It illuminated the regional renaissance of Tokaido toward the Megalopolis on the Pacific, thanks to imports of latest science and technology into the A.I.G complexes first from the United Kingdom and then from Germany. The incubation and innovation of technologies in the modern industrial revolution toward the IoT and the information industrial revolution 4.0 led by Germany and improved in the Western coast Megalopolis centered at Silicon Valley and IIC on the dispersed aircraft and munitions industry on the Pacific (Fig. 4-1; 4-2; 4-3; 4-4; 4-5; 4-6).

Considering the present global innovation of aircraft and space industries toward today’s MRJ, HII-A rockets, we should first pay due regards to the pioneer spirit not only the manufacturing parts and assembling planes but also R&D and investigations on the Job training based on the automobile industries and aircraft engine Army Arsenals, Atsuta, Nagoya and test flight Army Airport, Kagamigahara near Gifu city under the military use in the Nagoya metropolitan area, from whose sea airport to Nagoya, a local member of Parliament flew to Haneda, Tokyo. This sort of visible and invisible serial linkages exerted great influences on the evolution of industries, which in turn played great influences on the innovation of total latest information ones.

In the Tokaido Megalopolis, with Toyota and Mitsubishi has a similar engine of industrial revolution 4.0 based on the aircraft industry and information and virtual reality industry on the northern fringe of Nagoya Metropolitan area, the core mu-
Fig. 4-2. Location of Technopolis and Intelligent City
Source: Miyakawa (2003), p. 320

Fig. 4-3. Organizational Chart of National Institutes of Natural Sciences (NINS)
Source: National Institutes of Natural Sciences (accessed at July 14, 2017)

Fig. 4-4. Location of Forest Reserve, Green Corridors, and National Parks
Source: Tohoku Regional Advancement Center (2011)
nitions since the Meiji Restoration. This core was suffered from the damage of disasters by the Mikawa and Nankai Earthquake just before the end of World War II over the Pacific, caused by the Median Tectonic Line and the Philippine Trench and Plate, stressed in 1976 and legislated in 1978 for Tokai, when the Special Measurement Act of Big Earthquake was promulgated and Miyagi offshore and Izu Oshima earthquake occurred. They influenced developments of environmental smart industries, as we could see in the big damages by concentrated heavy rains in addition to the Kumamoto earthquake in 2016. The dispersion and diversification of industries all over the country, with divisions of labor on the global scene weakened the shock-absorbing structure and tolerance. It disturbed new production systems based on IoT cloud and big data analysis.

The metamorphosis of production system caused changes of sales, rental, and repairers based on the social changes and at last bring about the mutation of civilization not only by the change of industrial system but also the change of social system. These changes, at present lead the evolution of soft and cool industries and the metamorphosis of automobile and aircraft industries with artificial intelligence industries towards the neo civilization in the Tokaido Megalopolis on the global scene. This potential power and talent on the synthesis of hard and soft infrastructures enabled the revitalization and rejuvenation of munitions industries, taking an opportunity of Korean War in 1950 and development of National Defense Force, notwithstanding of separation of academic sector from close IAG contexts until 2017, when the Science Council of Japan accept decisions of member to reenter into the open innovation of military technologies from the Ministry of Defense, under the severe human ethics and natural providence.

As for the evolution of culture and the innovation of civilization, we often overlook the sequence of these processes and
the convert of locus and the change of role of human beings paying due regards to the human life and welfare in relations with global environment and ecology. The excellent art and the latest technology are now fusing again in the growing sustainable global market and society for better habitat and life. Therefore, we should pay due regards to the unique idea and the creative science in the adequate locus, space, office, room and in the expanding orbit towards the innovation of technology and excellent skill-up for the incubation of adequate products and evolution of industry to adopt with the new life-style and the better habitat. To cope with expansions of space and ocean investigation system since Argo Planning in 2000 conducted by Professor Hanawa, University of Tohoku with the twin global centers in France and USA. They cover the earth with big data and cloud analysis through social examination, space, underground and deep ocean investigation, on the global scene.

4.1 Big Sustainable Soft Social Infrastructure for Open Creation and Innovation

Considering the global innovation for sustainable development through the academia-industry-government collaborations context in the creative hosting environment on soft and hard infrastructure based on the National Land Ground Design 2050 in 2014, we should take care of natural and social change to preserve and construct the most suitable habitat for present civilization on the creative idea and science. We often look over the risk managements on sudden and deep changes and the preservation of physical room and psychological tolerance for shock-absorbing and rejuvenation system on advanced technologies and excellent arts on deep learning and neural network. It should take much care of National Land Disaster in 2011, National Land Resilience Law in 2013, and Regional Revitalization Law for Town and People and Task in 2014.

Italian Renaissance and Modern Industrial Revolution in Europe, the Sustainable culture and information and financial industrial revolution in the West Coast of USA and Cool Japan and Smart Civilization in the Central Japan Megalopolis are the typical examples of regional renaissances based on the structural regional industrial plan and projects. In Japan, in addition to social changes, natural changes exerted a great influence on a mutation of industrial and economic changes. These sorts of changes have been made clear, largely thanks to the developments of satellites and super-computers for analysis of big data and clouds on earth and space in rivalry with the activities of NASA. The pilotless satellite for investigation of the largest one, Jupiter, whose name is Juno (literally the wife of Jupiter), launched in August 2011 and circumambulating around the Jupiter in 5th July 2016.

In the new age of civilization on fundamental science, the advanced sciences gradually become the powerful engine of creation of latest idea and theory, advanced technology and design, and cool products & way of life to adopt with new sustainable lifestyle, LOHAS, on the natural providence and wisdom. The serial context in the expanded orbit on the evolved iconography is discerned in the Hiraizumi World Heritage, linked with Hashino of 23 serial properties of World Heritage of Modern Industrial Restoration in 2015 and Goshyono of proposing World Heritage of Jomon Civilization in the northern part of Japan. It is in the Sanriku Restoration National Park, the Rikucyu Coast National Park and Minami-Sanriku and Kinkazan Quasi-national Park on the Sanriku Geo & Eco Park, toward 2020 (Miyakawa, 2016) (Fig.4-1-1).

The synchronism among the East Japan Big Earthquake, the Hiraizumi Declaration on Tohoku Restoration and the designation of Hiraizumi Word Heritage in 2011 caused the epoch of neo industrial revolution with the development of environment and welfare industries based on the neo civilization. It accelerated the open Linear Corridor Project for global researchers in Kitakami hills between the coastal national park and Oou Mountain with Kurikoma Quasi National Park and Towada-Hachimandaira National Park along advanced cool and smart technopolis zones over the Tsugaru Strait. As for the training the excellent and young researcher nominated by the Ministry of Education will start within 2016. The sign of cooperation for prevention of fire in the peat forest, Sumatra, Kalimantan, and Indonesia, Peat Restoration Agency with Kyoto, Hokkaido, Research Institute for Humanity and Nature.

Fig. 4-1-1. World Heritage Hiraizumi 2011
Source: Iwate Prefecture (accessed June 9, 2011)
in 2016 are also the symbol of R&D institutes’ collaboration of practical science on the global scene.

This project exerts a great influence on revitalization of R&D institutes for advanced technologies and arts on the incubation of industry and new comprehensive global business model to fit with local ones in Silicon Valley such as the Science coffee of Ichinoseki station of Tohoku bullet train and Ichinoseki flood basin project. It is a symbol of landscape preservation on the short Japanese poem of Saigyo and 200,000 signatures for preservation. It will become national & international training and research center like Honedera and Interdisciplinary Center for River Basin Environment, Yamanashi University. It develops its international society and community through its education of foreign students and field researches in Nepal on the global scene (Fig.4-1-2).

This sort of soft-infrastructure projects were started by the Intelligent Cosmos projects centered at Tohoku University with expansion of national universities’ network and evolution of Sendai North Smart Technopolis in rivalry with Linear projects in the orbit between northwestern Golden road and southeastern Golden coast. They are based on the Tohoku Highway system in 1987 and then on the Tohoku bullet train system established in 2010. At present, the Synchrotron Light project, Tohoku, Japan is promoted to incubate latest technologies, skills, art and products such eco-tier, IGZO of mobile display, Hydrogen fuel cell of Mirai, Toyota Motor and Li-ion battery, Tohoku (Fig. 4-1-3).

The research and industry park on synchrotron light exerts a great influence on the revitalization of basic science, information and telecommunication, health care science of new life style in 2012, based on the success of Sawauchi Longevity village model since 1988. This social examination will enable the development of new hard and soft cool and smart infrastructure system, paying due regards to traditional knowhow and skills and open creation of design and innovation of technology for incubation of new products.

This locus of soft social infrastructure plays an important...
role on the evolution of science, technology, industry, business with new life style based on the revitalized iconography, thought and culture of Pure Land. It is seen in the collaboration with a famous industrial designer, Mr. Kiyoshi Okuyama in the northern part of Japan. His design is internationally very famous to fuse advanced technologies with excellent arts based on the automobile industries in rivalry with excellent design products of Kouji Mitooka based on the locomotive design of JR Kyushu to meet with new life style.

It is noteworthy that complexes of physical and psychological image over the time and space, i.e., locus exerted a great influence on the landscape and the local climate. It has been deeply imprinted in the local community and developed common and universal value to preserve not only in the region but also on the globe. To rejuvenate and keep the sustainability on the globe, this sort of World Heritage should be the suitable and smart iconography for the regional renaissance toward the creation of idea and science, innovation of advanced technology and high skills, evolution of smart life style and compact & cool habitat. The revitalization of unique sustainable culture and cool civilization changes the value chain on the expanding orbit and deepening iconography. It is an indispensable clue of open innovation for sustainable development, at present.

The Pure Land Thought and Layout is a symbol and symptom of creative and cool hosting environment for creation, innovation, incubation, improvement and evolution of idea, science, technology, products, skill, industry, and region. The beautiful Toyoda Art Museum on the water and garden designed by Mr. Yoshio Taniguchi, linked with Vatican Art Museum, built at the site of Shichisyu Jo, Koromo made it a new symbol of present civilization, taking much care of natural wisdom and providence, in the industrial park, green techno-pia, latest smart and cool house and town, constructed by Daiwa House Industry, succeeding serial project for sustainable development with Memorials.

4.2 International Liner Corridor for Creation and Innovation of Science & Technology

In case of Kitakami ILC academic and science town project since 2013, the World Heritage, Hiraizumi becomes a symbol that generates creative and innovative open hosting environment for rejuvenation of Kitakami Technopolis and expansion & evolution of agglomerated smart & cool automobile industries led by Toyota Motor East Japan, with present smart agricultural firm and cool & smart housing industries.

It develops better habitat in creative local culture & industries, along the road encouraged by Michi-no-Oku project started in the short poem, Haiku of Bashyo Matsuo. It is based on Sendai-North Core Industrial Estate and City, Sendai North Technopolis, Izumi Research Science Park projects. It was started by the author and A. Nakamura, Tohoku bureau of Ministry of I.T.I. since 1967 in the orbit with revitalized nominated World Heritage, Jomon re-civilization with privatized Sendai Airport, CSR, ESG investments, brand establishment, NPO training, by Toyota Foundation, etc.

This ILC project with 3000 international researchers is the latest soft social infrastructure project with only one enterprise in Tohoku, after the Tsukuba Academic Town and the Kansai Science city within the Tokaido Megalopolis. The Kansai Science City takes much care of life science on the thought of LOHAS and cultural science to conduct the practical unique science on the integration of advanced technology and excellent art. It is a little different from the Tsukuba Academic Town relocated from the Capital Tokyo, led by Tsukuba University and government owned R&D institutes.

In between, the Nagoya metropolitan area succeed to accumulate the indispensable R&D institutes related with the latest practical and comprehensive sciences, although it has still not the global leading science and academic smart town up to 2027, when the Central Liner Express will open between Nagoya and Tokyo with expansion of Haneda airport and actual social proof of smart town led by Tokyo Electric Power Grid on IoT. Nagoya University and Hamaoka Nuclear Power Station examined perspective equipments by muon, in 2016, stimulated by cosmic high energy neutron and Super-Kamiokande in Hida city on the northern fringe of Nagoya metropolitan area.

Compared with the center, the latest R&D basic and practical institutes had been established in a different manner and peripheral locus, such as Green Asia, Kitakyushu and Mutsu-Ogawara to promote global sustainability for keeping clean and cool, natural and social, global and regional environment and ecology. International collaboration and cooperation research projects in the natural providence and wisdom promoted the international R&D institute for radiation of materials to use thermonuclear fusion.

4.3 Invisible Serial Network of Images and Open Innovative World Heritage

According to the metamorphosis of global megalopolis, the intermediate region become the latest basic future Science
R&D town to synthesize practical active sciences and basic comprehensive sciences, which exert to synchronize and synthesize local R&D institutes, since the Tohoku Intelligent Cosmos project including national prefectural and private and private university’s R&D institutes such as the Institution for Advanced Bioscience, Keio University, Tsuruoka with foreigners established in 2001. And, the Shimokita peninsula became the Global R&D core of nuclear science, technology, and industry between Tsugaru International Strait and Misawa Airport.

This ILC gave its stimuli on development and coordination of serial cyclotron R&D institutes, Nishina Memorial Cyclotron Center and Cyclotron Center of Iwate Medical Science University, Akita Prefecture R&D center of cerebral blood vessel, massive particle for medical treatment of cancer, Yamagata and South Tohoku BNCT Research Center, South Tohoku Proton Treatment of Cancer in addition to the Research Center of Extreme situation of Energy density of Nagoaka University of Technology, Japan Atomic Energy Agency, Takasaki, KEK, Ibaragi and Nishina Accelerator on IAG context by Miyu parcel centered at Tokyo University and 7 perspective foreign R&D institutes.

These networks of networks of R&D institutes is indispensable for international open innovation of technologies for global leading electronic and automobile industries on the better conditions of local airports and new bullet trains networks centered at the Capital Tokyo and at the enlarged Ha-neda International Airport up to the Tokyo Olympic. It is the national strategic designated areas to attract foreigners like London, in 2020 in the creative and cool hosting environment of natural providence and wisdom cultivated by the national parks and the World Heritage of Shiragami Mountains and Hiraizumi with the Jomon Civilization with fine active arts and traditional medical knowhow and skills by an excellent synthesizer and revitalized traditional community on Dewa three mountains.

Concerned with global open innovation, a decade history of IPS Development for regenerative medicine led by Shinya Yamanaka in the R&D Institute of IPS Cell since 2006 illuminated the meaning and role of serial and synchronized projects of Kyoto University, Osaka University and Riken Kobe through cooperation and collaboration of legal revision. This sort of soft social global, international, national, and regional infrastructure becomes indispensable more than ever, such as the COI project of CRDS of JST. It confirms open innovations among industries, universities, government such as Suntory World Research Center, and soft & hard infrastructure in the sustainable global society and market, taking much care of ICT & BCP, feedback loop and hosting environment to adapt with its rural and urban locus.

This LHC project at Genève gave great stimuli on the basic latest physical science such as Hicks Particle founded by two novelist in 2012 and accelerated new physical science and practical perspective science on new 4 and 5 stages. It will create new idea and science, innovate technology and skill, and incubate business and industry on the globe in the space, on the examinations in KEKB in Tsukuba Academic Town since 1999. It developed more as Super KEKB in 2017 for evolution of space science and prospective.

Succeeding these projects, this LHC, Kitakami Academic and Science Smart & Cool, and Compact Town will be expected to be a new mecca of science of advanced practical technology to cause the mutations of technopolis belts, Tohoku, different from its rival, Super Kamiokande, Hida city on the back of Nagoya metropolitan area. This High Energy Accelerator Research Organization, Tsukuba and Tokai is the co-operative use R&D institutes of Ministry of Education, a pivot and hinge among R&D institutes including Kamiokande. This sort of global mega hard & soft infrastructure with networks becomes indispensable for inspection of new idea and science theory, taking much care of its pile and substitution and skills
and technologies to evolve industries.

As for the International Liner Collider project, it develops to synthesize agglomerated ITER (International Nuclear Fusion Material Irradiation Facility), Japan Atomic R&D Institute, Yamagata University Heavy Particle Cancer Medical Treatment Center, Comprehensive Radiologist Institute and KEK, RIKEN on the South Tohoku BNCT and Tohoku Radiation Institute, in rivalry with Spring 8 of Harima Science Park.

5. CONCLUSION: LOCUS OF SOFT & SMART INFRASTRUCTURE AND ROLE OF SYMPHONIC SYNTHESIZER

5.1 Better Habitat and Natural Wisdom

Considering promotions of soft and smart mega infrastructure, we should take much care of employments of best talents, from foreign and domestic university, government and industry and job hopper who know well both fundamental comprehensive science & philosophy and practical science & technologies. They live in the better and sustainable habitat such as smart and eco town by IoT with excellent access such as Sendai North Technopolis near the national park and the world heritage with the excellent local culture. They develop its feedback loop among the new science, technology, industry and market and society on natural providence and natural wisdom.

In this process, not only the control of project toward the ideal goal but also the flexible and strategic project management, especially de-regulation to adapt with the changing phase since 1987 toward the ideal habitat with LOHAS life in 2017 becomes important more than ever, as is seen in the case of construction of smart cell with housing estate, zero energy housing, small and medium scale industries, shopping area near the interchange of Kei-na-wa Highway and station of JR Science Town line.

These hard networks and cross roads accelerate the utility of creole of NICT. As a result, the Kansai Science City creates opportunities to follow up the Tsukuba Academic town with over 5,000 foreign researchers. To overcome this handicap, this city with 219 foreign researchers develops scientific co-operations with surrounding universities in the hosting environment of historical sites, ecological nature and traditional local production area such as Ikoma Bamboo Tea whisk. This academic and scientific traditions, society, community and university funds for incubation of venture, by private funds such as Japan Venture Capital & Miyako Capital, in hosting environments of cool and sustainable town in rivalry with surrounding science parks and towns such as Senri.

As for the low carbon society, Kyoto University developed its new energy source of hydrogen and ammonia for SOFC and automobile engine, in rivalry with Tohoku University. It will be able to give a new style of smart Sendai North Technopolis, using the Tohoku University Fund like Osaka University and Kyoto University Fund, together with private ones for the each university’s venture business on the global scene. Local university, Iwate also evolved the advanced coat fusing technology of Mizusawa traditional kettle production area such as Touwa Denka and Kyugen Cast, near the Toyota Motor East Japan, Kanegasaki and Fujiiwara-no-Sato, Historic Tehama Park established in 1995 for NHK Drama on the Golden Road, Hidehira (Peace road, R 107).

As for the sustainability, the Development Bank of Japan accelerated the loan for new facilities and systems to develop potential powers to adapt with big disaster, such as the excellent enterprise, Aishin, which has its better business continuation plan. Its Kumamoto factory was destroyed and suffered from the upset delivery plan of its product at the new stage of financial and information industrial revolution. This soft infrastructure with steak holders becomes important more than ever in the liberalized world socio-market and to re adapt with the disasters caused by natural changes.

Concerned with the essential and original roles of university, the university should develop first basic, applied and practical science & technology and then it science & technology for risk management and rejuvenation, in addition to the basic education & training and then to development of art & incubation of business on the global scene. Through this collaboration, cooperation, coordination and creation of new science, technology, tool and business among academies, industries, governments, teacher & students, trainer & trainee, not only the basic science and applies science, but also the comprehensive and practical science become indispensable more than ever. They adapt with the metamorphosis of industries and the mutation of age, largely thanks to its locus and encouraged by the new assist system for practical pioneer researches by the Ministry of Education & Culture, Sports, and Science in 2016. This sort of systematic change is indispensable for evolution of R&D through the establishment of complex with over 30 companies, universities and public R&D institutes such as Toyota Motor, Hitachi & Sankyo to employ about 150 young excel-
lent researchers with doctor degree. It encourages the local unique R&D institute such as Eco-Frontier Center of Medical Resources of Kumamoto University based on the Medicinal Herb Garden of Hosokawa clan in 1756 to develop its overseas open innovations.

5.2 Change of Regional Industrial Structure and Fusion of Traditions with Advances

In the time of contemporary industrial revolution, the sustainability of first industry in the core and center district in rivalry with the first industry in the most suitable peripheral and frontier area is the typical examples as we could see in the case of greenhouse managed by new comers based on the improved skill and technology of hydroponic farm of honewort by farmers in the western fringe of Nagoya metropolitan area and case of tomato house by JR Tokai in its eastern fringe with local tomato cultivation culture developed together with the leading company, Kagome.

To adapt with this mutation and in accordance with the liberalization and the cost-benefit point of view, the independent administrative organization, University for Farmers was abolished in 2012. Instead of this university, the Japan Institute of Agricultural Management was established in 2013, by 200 private companies such as Nichirei and Eon to adapt with the establishment of TPP and focus its training and education on the practical science and management techniques without agricultural natural science, skills, technology and engineering.

As for the open training of creation of philosophy and science, innovation of technology and industry, incubation of venture business, and evolution of region and habitat, the National Institute of Advanced Industrial Science and Technology adopted its research assistant system with fund to write academic paper in the graduate school such as artificial intelligence and cyber security to meet with the present IoT age of 4th industrial revolution in the liberalized word market and global society in 2014. This education and training on the job toward the global and local innovator becomes popular as is seen in the case of the master degree of HEC Management Graduate School, MBA in addition to the bachelor of department of economic of Keio University within 5 years.

This sort of innovation and reformation of graduate school and global core R&D institute started in 2012 by the Ministry of Education. The American style culture and hosting environment of academic university in the Tsukuba Academic Town enabled the establishment of International Institute of Integrative Sleep. It is a typical global R&D institute for innovation and graduated school on the global scene in rivalry with practical and comprehensive Artificial Intelligence Institute for Big Data and Cloud Analysis. It becomes popular in a tolerant mode and local culture and excellent skill and sense of ASEAN and India with Sri Lanka to learn lessons from collaboration of Hitachi and Tokyo University Laboratory on open social innovation toward sustainable smart community. It has the specific target for development of new materials; Graft Polymerization of National Institute for Quantum and Radiological Science and Technology (Chiba & Takasaki) along the Bullet trains, Highways and airports.

In contrast to this metamorphosis of private and government owned R&D institutes toward the practical applied science and scientific investigations, the governments owned university and R&D institute intend to develop the basic idea, science, technology and business for future industries on the global and spatial scene in Misasa, hot spring town, Totori Prefecture. It is recognized in the transformation of Institution for Study of the Earth’s Interior, Okayama University to the Institution for Planetary Material in 2016 as a result of analysis of planetary interior and materials of small planetary, Itokawa by Hayabusa. It is a small planetary investigate rocket toward the space center of planetary study and education with 5th year complete loan if the student pass the examination of master within 2 years. It is a soft mega infrastructure of 5th industry.

As for the sustainability of region, the Eco Frontier Center of Medical Resources in the Medicinal herb park of Hosokawa clan (7000 m) along the Shirakawa River near the Kumamoto station & castle in this creative hosting environment. It, of course, adopts the global open innovation system, as is seen in the study and incubation of seeds for oil of ointments in Nepal and Japan in 2015 together with its department of pharmacy and Healthy food mail order & sales company in the time of millennium economy.

To adapt with the increased regulation on the emission for sustainability, most of all car companies develop suitable emission control cars as are seen in the Indonesia International Auto-show in 2016. These concept cars are symbol and symptom of sustainable socio-economic iconography on the local and global scene to reduce the cost and to increase the benefit and sustainability in the oligopolistic industrial structure led by Toyota, Daihatsu, and Honda & Mitsubishi. Its new car market amounted to 101 million, the largest market in ASEAN; it will give a stimulus on the global innovation of new technology, parts and system for Academic, Government and Industrial group.
To this cost-benefit point of view, we should pay more due regards, the indispensable hard infrastructure such as Coal Power Station in Indonesia (17.3% of imported coal in 2015), taking much care of sustainability on the global scene, in rivalry with Joban Joint Power, Iwaki, Fukushima prefecture established in 1966. It is the symbol of most advanced IGCC technology system. Through these investments of hard mega, infrastructure such as bullet train and huge comprehensive port and highway system, Indonesian government learned the more importance of management knowhow and rejuvenation and maintenance free knowhow than the development of production and construction technology and skill. Owing to these experiences, both governments and industries learn the indispensable creativity of comprehensive & practical science and education of excellent coordinator and synthesizer on the job training and automatic sensor investigation system developed by Yamaguchi University and Taisei Kensetsu.

The stock of over 50 year’s bridges (over 2 m) occupies 18% of the total, and its ratio will increase 43% in 2023 and 67% in 2033. This is the basic domestic market to develop new maintenance free hard infrastructure with IoT management system, constructed by A.I. control construction machines such as Komatsu & Mitsubishi in overseas countries. The new agglomeration of automobile industries in the management territory of East Japan Toyota Motor and of Kyushu Toyota Motor, which enable new open innovations for sustainable developments and giving a great stimulus on the potential ability and power of local universities in the changing new mode and local fundamental cultural changes; new design gasoline Engine & mild Hybrid, EV & FCV.

To adapt with the rapid growth of base of pyramid and halal market, Ajinomoto developed its seasonings since 1969 and then refrigerated bred business in 2016 and then cultivate food market in ASEAN with its development of technology and know-how, developed together with industry, government and academy. In this rapid growth of ASEAN, owing to their locus as pivot and hinge, and their role as incubator and innovator, Singapore University and Nanyang Technological University have already achieved the top and the second position in Asian universities in 2016. They are followed by Peking university (second), Hong-Kong University (fourth) and Tsinghua University, Peking (5th).

Compared with these universities, Japanese universities lost their grounds and become the 7th of Tokyo University, 11th of Kyoto University, 23th of Tohoku University, Sendai, 24th of Tokyo University of Engineering and 30th of Osaka University, according to the Times Higher Education, which changed the allotment of marks as is seen in the 3 times increased income of industry-academy-government collaboration. It enabled the rise of ranks of Chinese university based on their community and society, together with consultants (Nikkei 2016 22th July). Considering the role of university in the collaboration, we should take care of the importance of serial societies and practical community of excellent artisans. It becomes the core of open innovation of technologies and engine for evolution of regional renaissance toward sustainable smart & clean city.

Considering the stage of regional renaissance in the 2014 conference for strengthen the industrial competitive power of Tohoku, we should take care of agglomeration of automobile industries with the competitive ability with leading countries such as ASEAN in Iwate and evolution of medical machine industries in Fukushima. In these projects, we should, pay due regards to the potential power of innovative company such as Denso and the timing of sympathy and synchronism among the regional resources and talents developed by Tohoku University and its entrepreneurship and its division of labors among universities in the keen competitive co operations in the Tokai Industrial area, especially, Sanen-Nanshin. To incubate original and unique products, we also give opportunities to synthesize the total comprehensive and integrative strategies on the global scene based on the IoT and latest information technologies.

The sustainable tourism and tourism sustainability could develop attractive hosting environment and revitalize soft mega social infrastructure based on the academic and artisan community expanding over the amalgamated mountainous towns and village. This hosting environment between the core, Toyota, Aichi and its new sub core, Iida, Nagano revitalizes the global and local IT network of networks. It attracts new R&D institutes such a German Continental, which supply its ADAS parts such as Camera and Leaser instead of its neighbor, DESO. It is the second platform supplier with service, software, technologies, skills after German Bosh that practiced IAG collaborations in Stuttgart by the opening of AI age of 2030 on the net-marketing and IoT system.

It gives a stimulus on the regional renaissance of Shimojo under populated village since 1992, whose population recovered to be 4200 from 39 00, owing to changes of administration and management system, before opening the Iida station of Chuo-Linear Railway in 2027. It develops the multi-core structural global city, Tokyo, owing the constructions of neo hard infrastructure up to the opening of Tokyo Olympic in 2020.
It also promoted the multi-cultural global city with soft infrastructures on the national strategic designated areas policy, and then gives great stimuli to its counter power, global city, Nagoya led by the JR Tokai up to its opening in 2027 and the revitalization of automobile and aerospace industries with artificial intelligent industries, with its science, technologies within 47 minutes’ orbit of Tokyo. Under these politico-economic pressures, the Osaka metropolitan area will be obliged to rejuvenate the old capital Kyoto, Nara and Kobe with Kansai Science City under the knowledge capital campaign projects with health & welfare industry (Miyakawa, 2015).

5.3 Social & Natural Global Changes and Rejuvenation of National System

According to the estimation of population in 2050 by the National Research Institute of Population & Social Security, the number decreased from 128 million in 2008 to 121 million in 2025 and 97 million in 2050, although its number will be still over the estimation, 87 million in the National Land Rehabilitation Plan in 1946. The problem will be occurred by the diversification of residential population; 19% of habitat lost its residential ones, 44% of habitat lost over its 50% of its residential ones, and 35% of its habitat lost its population, although only 2% of Habitat increases its population.

To adapt and readapt with social changes, not only the hard infrastructure but also the soft creative infrastructure will have to be constructed, paying due regards to its cost performance and cost-benefit analysis of communications and networks for creoles. Namely, the soft social infrastructure to activate potential talent and resource become more important than the hard social infrastructure. And the smooth networks transactions and transit are indispensable more than those of transports and travel on global scene. The clear target and cool time schedule to achieve the target with the feedback loop and rejuvenation system should be necessary. It is more important for sustainable innovation of technology and evolution of industry to correct the former projects and to reuse the talents and the established infrastructure better for the renewal. As for the sustainability, we should perceive the basic customer oriented skill, design, knowhow and service. These kinds of double and dual checks and improvements are necessary to incubate new venture business and basic science and idea in the cycle of I.G.A collaboration, with AIST-Supporting Intelligent Satellite, Tohoku such as the division of aerospace and healthcare industries toward the hybrid industries, traditional & advanced and design & quality to establish the Tohoku Brand based on the Jomon culture and civilization, together with Tohoku Regional Advancement Center and their only one unique and active localized enterprises with strong entrepreneurship. They held their first Matching Festival of Next Generation Industrial Technology in 2017 at Garden City Hotel Sendai. As a conclusion, the roles of synthesizer, coordinator, cooperater, collaborator and creator, at the time of mutation of civilization become more important than ever in the global innovation of economy and the evolution of sustainable region. Through concrete success of matching planner, Restoration center of JST, we recognize the essence, sense, skill and technology of fundamental practical and comprehensive science more than ever to develop sustainable Techno, Science, Brain & Smart parks for bottom up innovation to match with the leading ones at a good timing.

The serial social and natural changes on the global scene accelerated the mutation of Japan, especially since 1972. It caused the regional renaissance with rejuvenation of civilization and metamorphosis of industrial structure as is seen in
the Yokkaichi Industrial complex with ICETT, taking much care of natural providence and wisdom. They generates Forest for Health at Obu on the opposite side of eastern frontier of Nagoya and serial complexes such as Softopia, Japan, Virtual Reality, NINS Okazaki on its periphery. In addition, the global mega soft infrastructure such as Kamiokande become important more than ever in contrast to the regional renaissance in Nagoya since 1989, the opening of era of Heisei (literally formation of pacific sustainability.

In the era of mutation, the open innovative industry-acade-
my-government comprehensive community plays an indis-
pensable role as an excellent synthesizer of original unique music to encourage the natural providence and wisdom. It is a new device of rejuvenated Japanese traditional culture for evolu-
tion of Japanese latest and sustainable civilization on the global scene along the time table and contemporary Japanese studies. It is indispensable to survive Japanese AI industries and fuse art with technology for rejuvenation of traditional ones on the global scene, paying due regards to the local unique ‘Only One Enterprises’ designated by the Tohoku Re-
gional Advancement Center (Global Top, World Top class, Top Japanese, Japanese Top class. Original technology and product companies, etc. Machine 60, Iron & Metal 57, 43 other manufacturing, 5 other business) and to its distribution, in re-
lations with metropolises and universities) and with govern-
ments initiative global mega-infrastructure such as a global soft mega-infrastructure, ILC on serial contexts of R&D insti-
tutes and agglomeration of aforementioned local unique ‘Only one Enterprises’ for industrial and economic reconstruction and change of local entrepreneurship, more than ever.

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Received January 17, 2017
Revised August 29, 2017
Accepted September 04, 2017