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Musha Research's practical policy recommendations for recovering from the 2011 off the Pacific coast of Tohoku Earthquake

Use the rebuilding process to create a model for Japan that can be a global leader in the future

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Musha Research has created the following practical policy recommendations for reconstruction following the 2011 off the Pacific coast of Tohoku Earthquake in response to a request from The Securities Analysts Association of Japan.

Japan must aim for the country's "third opening to the world" by using earthquake reconstruction as the model for making innovative changes. There are two keys to achieving economic prosperity in Eastern Japan. First is establishing a position within the global division of labor. Second is building a multilayered structure for the division of business activities that combines a self-reliant economy and living environment. Accomplishing this will require the establishment of local governments with considerable authority. Japan must create an economy that is as streamlined as possible. Favorable treatment for the input of resources will be needed to achieve this goal along with the elimination of restrictions and constraints of regulatory systems. As this process takes place, Japan should establish a creative financing arrangement in which resources within the region are used effectively and cash flows can be converted into financial assets. In addition, Japan must use the nuclear crisis in Fukushima as an opportunity for sweeping revisions to the country's energy policies. The objective is a long-term switch to dispersed and renewable energy sources. Decisions about the treatment of Tokyo Electric Power and nuclear power should be made within the scope of this long-term energy strategy. To rebuild damaged areas, we can utilize higher wages linked to a weaker yen and that higher prices of assets and stocks can be used as a source of funds for the recovery. This is why Japan should adopt a macroeconomic policy that uses this disaster as an opportunity to break away from the prolonged period of deflation.

Chapter 1 Goals for Reconstruction and Reform Initiatives – Transform this Disaster into an Opportunity

The arrival of the black ships of Commodore Perry which opened Japan to the world sparked the immediate convergence of free discussion. This time as well, the catastrophe in Eastern Japan may very well lead to an immediate national consensus about actions needed to achieve the goal of reforms: a third opening of Japan to the world. Even without the disaster, Japan's current political, economic and life style framework could not have survived for another two or three decades. There are many issues: the advance of globalization; the Internet revolution and areas of Japan that were left behind; the aging of workforces in the agriculture and fishing industries and depopulation; an energy infrastructure that relies on nuclear power; and other problems. In every case, Japan must use the disaster as an opportunity to create a sustainable environment.

- ✓ The world is becoming a more level playing field (flatter), more open, more democratic and more equitable. Japan must use its "third opening to the world" to take the lead in this process.
- ✓ Earthquake reconstruction should be used to create a model for the Japan of tomorrow and for building a base for this transformation.
- ✓ Eastern Japan should "show the world Japanese-style happiness" and "the proper path to prosperity (higher productivity)."
- ✓ But much work must be done. Exactly what should Japan change?

(1) Historical issues and global issues

The outline of a "global commonwealth" is emerging

What kind of country does Japan want to be? What philosophies and systemic framework are needed right now? The answers to these questions are defined by several key words: economic democracy, flat networks and globalization. Immense changes are taking place worldwide. If I had to summarize these changes in a few words, I would say that the world is shifting from superpower control by the U.S. to a global commonwealth. The U.S. is undergoing a transformation from a superpower to the leader of the global commonwealth. Countries of the world are competing to establish their clout by submitting ideas for the philosophy behind the creation of the slowly emerging global commonwealth. Changes occurring in the U.S. are the greatest of all. For better or worse, the U.S. under the leadership of President George W. Bush was viewed as forcing the system of U.S. values on other countries. But President Barack Obama has achieved a transformation. He is not merely the first black president. He is also a president who has made a dramatic shift to policies that reflect international public opinion. For instance, he has called for complete nuclear disarmament, refrained from attacking Libya, and asked Israel to give back land it has occupied since 1967.

Why is the U.S. trying to change itself? I believe there are three reasons. First is the comparative decline of the U.S. economy as the influence of emerging countries grows. Second is the obvious acceptance of U.S. values and systems on a global scale. Third is the U.S. leadership in terms of changes in technologies and systems as the world advances toward to new age that flatter (a more level playing field), more dispersed and more open. In other words, the U.S. is seeking to reap benefits for itself from the emergence of a global commonwealth. Next, let's take a look at the values that are about to be shared to form the philosophy for the global commonwealth. Basic values includes (1) democracy and protection of human rights, (2) a market economy and capitalism, (3) responding and adapting to an Internet environment and a flatter world, (4) protection of the global environment, and (5) taking advantage of global governance (becoming a night watchman state (minimal state), more authority to maintain public order). Countries around the world are about to divide their roles in carrying through with the philosophy for the global commonwealth. Apparently, countries are competing among themselves to "show the world what happiness looks like."

The significance of Japan's "third opening of the country"

Japan's conversion that is called the country's "third opening" is taking place amid this global environment. In this case, "third opening" means redefining Japan's positioning in the world. The first opening that occurred around the country's Meiji Restoration was a response to the powerful division of the world and shift to an imperialistic age. Japan adopted a policy aimed at becoming a prosperous country with a strong military force for the purpose of taking the actions needed to become a winner as the world was divided. The second opening took place after Japan's World War II defeat. This opening was a response to the world leadership of the U.S. (Pax Americana). Japan entered an era of emphasis on its economy as a country of ordinary citizens and a small military force. Now the country is approaching the third opening. Adapting to the global commonwealth and global citizenship will probably be the central theme this time. During the global commonwealth era, Japan must find a way to retain its position as a country that is prosperous and respected. Achieving this goal will depend on whether or not Japan can become a model for showing how to give people of the world the happiness they want.

(2) What are Japan's problems?

Japan's weaknesses are revealed

Japan would have been forced to change in response to the coming age of the global commonwealth whether the catastrophic earthquake had occurred or not. The disaster has revealed weaknesses that are preventing Japan from adapting to the new era. Most serious among these weaknesses is the almost complete lack of economic rationality. People in Japan are working very hard but their efforts are not leading to a better life or a better tomorrow. Japan will be unable to win reputation in the world as long as this situation persists. Both unrewarded work and inappropriate gains exist in Japan. For example, workers in Japan have not seen any increase at all in their wages despite an improvement in their productivity. Moreover, stock prices still not ended their prolonged slump even though companies are increasing their earnings. And the more that governments increase their deficits, the more the cost of their debt (interest payments) declines. The principle of paying the same wages for the same work does not apply at all in Japan. For example, there is a great disparity between public and private-sector wages of garbage collectors and cafeteria workers. There is also gap between original contractors and subcontractors. In addition, Japan has a culture that emphasizes communities. Discrimination (different treatment of official and unofficial parties) between parties inside and outside the community is significant. Very little importance is placed on intelligence and information from surveys. Japan is unable to create proposals for logical policies, corporate strategies and investment strategies. As a result, Japan frequently makes serious mistakes.

The reason is that Japanese society is a primitive gemeinschaft and has not become a civil gesellshcaft with a rational purpose. Enormous waste is produced by the absence of economic rationality. The resulting distortions in the allocation of resources cause the quality of life in Japan to decline. There are a multitude of problems: inequity in the distribution of income; small incomes for workers and large incomes for people living on pension and public finance; and entitlements program people spending more years in retirement than in their jobs (waste of intellectual assets gained from young old workers); a continuing outflow of capital from the private-sector; sabotage of long-term investments (education, R&D, creation of new business models); difficulty of starting new companies and keeping zombie companies alive; the outflow of wealthy people from Japan; the decline in the desire to work and to succeed; the loss of the Japanese Dream; the loss of moral and ethical standards; and other issues.

All of these structural problems cause Japan to pursue inappropriate ideas and policies. The result is haphazard policies (hung-up on continuity or precedents, policies and decision-making that assume no responsibility and instead follow what other countries have done) with no independent thinking. Severe defects with Japan's problem-solving and crisis-management capabilities have been exposed again by this disaster. Japan will be unable to play a leading role in the global commonwealth unless actions are taken to eliminate these defects.

(3) The direction Japan should seek and the reconstruction of Eastern Japan

Use earthquake reconstruction to create a model for reforms in Japan

Japan must redefine itself during the earthquake reconstruction and recovery period (establish a model for Japan rebirth). What types of countries can be prosperous and successful in the global commonwealth? What model for happiness can Japan provide to the people of the world? Japan must seek the answers to these questions. First, Japan must clearly state the importance of establishing values that are shared worldwide among prosperous countries: democracy, human rights and an economy based on capitalism and markets. Pursuing greater economic rationalism is another requirement. Second, Japan must reconfirm and maintain its distinctive superiority (technology, quality, teamwork, emphasis on traditions). Third, Japan needs to take steps that reflect its position in Asia (Asia's largest democracy and characteristics involving the environment, technology, cultural level, nature and history).

During the reconstruction process, Eastern Japan must establish its position within the global commonwealth by skipping over Japan's defects that I noted earlier (policy restrictions, regulations and customary practices). Reconstruction needs to be consistent with the global standard of rigorous economic rationalism. Even more than Japan as a whole, Eastern Japan must play a useful role in the world. Many areas of the world have established distinctive roles for participation in the global commonwealth. Examples include Silicon Valley, Switzerland, Singapore, Hong Kong and Dubai. In the same manner, Eastern Japan should become involved on global scale as a self-sufficient economic zone. Accomplishing this will require bold ideas for the creation of a "regional nation" rather than merely the decentralization of authority.

Chapter 2 Use the reconstruction of Eastern Japan as a model for construction of a country and national economy that is dispersed and networked

- ✓ Creating happiness in Eastern Japan will require favorable treatment for providing of resources and skipping over constraints involving regulations and vested interests
- ✓ Establish a position within the global division of labor along with a self-reliant economy and place to live
- ✓ Effectively utilize idle resources within the region: people, money, land, etc.
- ✓ Creative finance, translating cash flows into financial assets, savings bank for kindness
- ✓ Establish powerful local governments; significantly decentralize power among regions with elected leaders

(1) An industrial employment pattern based on a multilayer division of industry design

Concentrating industries for the global division of labor

Eastern Japan must be transformed from a remote region with an aging population and few children into a base for growth. The first step is establishing a self-reliant regional economic zone. This will require the creation of reconstruction agencies and local governments with much more autonomy for the purpose of enacting measures for industry, logistics, finance and social welfare programs. The second step must be an economic and industrial design that uses a multilayer division of industry as the premise. As the table below shows, this is a regional industrial structure that is well balanced. A multilayer division of industry means that regions earn income from other areas by playing a role in the division of labor on a global scale and within Japan. In other words, a region needs to have industries and companies that serve customers worldwide and throughout Japan. Furthermore, a region must be self-contained with regard to many items.

Table: Design for the Multilayer Division of Industry that Eastern Japan Requires

	1) Global division of labor	2) Division of labor within Japan	3) Division of labor within region	4) Division of labor within community
Customers	→The world	→ Japan	→Regions	→Communities
Industory	High-tech	Government	Construction	Senior care
	Automobiles	Fishing	Electric power	Welfare
	Education	Agriculture	Public sector	Services such as barbers
		Tourism		Education
		(Relocate Japan's parliament)		
		(Relocate Tokyo University)		

Source: Musha Research

To participate in the global division of labor, Eastern Japan must have high concentrations of industries that can compete globally. Becoming a global high-tech manufacturing zone and a nucleus for the high-tech supply chain is the first step. This will involve building on the existing manufacturing base of high-tech materials, components and devices. In addition, Eastern Japan should strengthen its presence in the automobile and machinery industries, both of which are showing sudden growth in recent years. Enacting policies that support these industries is vital to avoiding supply chain leakage. In addition to manufacturing, tourism (a base for sightseeing in Asia) and primary industries are also part of the global division of labor. High technology and other ways to add value should be used in the agriculture and fishing industries to create powerful brands in these sectors. There are already many examples of these brands in Eastern Japan, such as apples from Aomori and cherries in Yamagata and the La France (pears) in Iwate. There should be more potential for expanding sales channels that target Asia. Furthermore, Eastern Japan needs to use participation in the Trans-Pacific Partnership to enact agricultural reforms in line with global standards and become more competitive in international markets.

Using government policies to encourage the creation of new industries and sources of jobs are also effective actions from the standpoint of supporting Eastern Japan's recovery from the earthquake. Resources may be channeled to this region as a national project. This could result in the decentralization and transfer of some government activities from Tokyo, the construction of cultural and educational centers, and other activities. There are many possibilities. One is the relocation of the National Diet to the Abukuma region or the Nasu region of Eastern Japan. Tokyo University may move to Abukuma (an idea of Yasuhisa Shiozaki, former Chief Cabinet Secretary). The technology development center of Tohoku University, which collaborates with private-sector partners, may be enlarged and upgraded. This could give Tohoku University a role similar to that of Stanford University in Silicon Valley.

The dispersed infrastructure needed for a self-reliant economic and living zone

Eastern Japan needs to build bases for the division of labor on a global scale and within Japan. Equally

important are the development of highly self-reliant economic and living zones with a high cultural level that are centered in areas affected by the earthquake. This includes new regional and urban development projects. To fund these activities, Japan must make effective use of capital, land and people in Eastern Japan that are currently being underutilized. We therefore hope to see the creation of markets that are well suited to these resources. Establishing a regional credit framework and building state-of-the-art Internet facilities are two ways to accomplish this, as I will discuss later. There are many proposals for methods to use regional resources effectively. Jobs at companies involved in reconstructing communities and generating funds by selling reconstructed equipment are two proposals (article by Takashi Onishi; professor of Tokyo University, in the May 11 Nikkei Shimbun). Eastern Japan must avoid high costs of government programs and services caused by its remote location. This will require creative thinking such as the establishment of “compact cities” that can be population centers of the region to some degree.

Building an infrastructure (energy, transportation, communications, finance and government services) for the supply of goods that is consistent with the multilayer division of industry should be a national project in which the national government devises ways to design systems and procure the required funds. Transportation lines that provide global access to Eastern Japan are very important. We also hope to see experiments involving smart cities and smart grids with dispersed energy sources. For example, renewable sources of energy require much smaller investments than large power plants and can be constructed faster. Solar cells can be installed by electricians and small construction companies. But Eastern Japan’s high deposit-to-loan ratio demonstrates that there are few investment opportunities in this region. If loan guarantee associations can guarantee credit extended to energy businesses, Eastern Japan can create a framework for directing trillions of yen to the energy sector from regional financial institutions.

Use self-reliant authority that is unrestricted by regulation and vested interests

Eastern Japan must not be restricted by restrictions and entrenched interests during the process of shifting to new core economic drivers. First is reforms of the land utilization system. Tatsuo Hatta (professor of Osaka Univ.) and Shuhei Yoshida (Professor of National Graduate Institute for Policy Studies) have offered two proposals. One is creating a framework that can bypass restrictions and ownership rights that prevent the effective use of land through the consolidation of real estate. Basically, that means the conversion of ownership rights. The other proposal is to consolidate real estate by using term leasehold interest. One idea is to have owners of real estate that was damaged to lease their land to a particular entity (a local government agency, a public-private sector partnership or a private-sector company) so that it can be used for a specific period of time like 50 years. The lessor would consolidate the land into a single site for the construction of apartment buildings. Landowners would receive ownership of part of the project instead of lease payments. Using this scheme would permit reconstructing buildings at no cost for the land. In addition, there is a proposal for avoiding restrictions imposed by Japan’s Agricultural Land Law, which creates a barrier to the consolidation of land by prohibiting companies from owning agricultural land. (May 10 Nikkei Shimbun)

Takatoshi Ito and Motoshige Ito (both professor of Tokyo Univ.) have submitted similar ideas. They suggest giving up the reconstruction of some coastal areas and buying the land. Then candidate sites for relocating these communities can be purchased and city plans created. Construction zoning regulations can be eased and other actions taken to exempt these locations from the many regulations associated with land and buildings (land rearrangement, ratio of building volume to lot lot). Areas affected by the earthquake must be utilized. This will require the flexible application of tax systems associated with land transactions and exchanges of land. (May 23 Nikkei Shimbun)

Opening up fishing rights is an effective way to revitalize the fishing industry, according to Masayuki Komatsu (Professor of National Graduate Institute for Policy Studies). He notes that Tohoku accounts for 15% of Japan’s production of fish and 15% to 30% of Japan’s marine product processing, freezing and storage sector. There are 36,000 people engaged in fishing in the region, 15% of the total for all of Japan. But the fishing industry was almost decimated by the earthquake. Measures are needed to prevent a drop in prices caused by overfishing and to secure resources. At the same time, Japan must deal with the problem of a shortage of next-generation workers due to the aging workforce in the fishing sector (50% are at least 60 years old). Japan should open up fishing rights to encourage people to enter this business. Sales of fishing rights should be allowed, including rights to grow seaweed and raise oysters and scallops. This would make it possible to channel private-sector funds to the affected areas and create a corporatized self-sustaining fishing industry. (Nikkei Shimbun May 24). There are already media reports of sales of rights to raise clams and people starting up fishing operations.

(2) Establishment of sources of financing

Create securities financing that is backed by future cash flows

Public-sector funds should be used to pay for reconstruction activities and expenses related to the nuclear power plant problem. Sales of national government bonds should be the first source of funds. Tax hikes should come only after the recovery has been completed and the economy is growing. Another option is the use of so-called hidden public-sector reserves to fund earthquake recovery programs. But the use of private-sector financing is even more important with regard to funding reconstruction. I believe that Japan

should use the disaster as an opportunity to further promote Japanese-style direct financing and security financing. For instance, idle land in Tohoku and unused deposits at banks and small financial institutions in this region could be directed to investment funds. Schemes like this should be used to create a financing cycle in which the private-sector plays the central role. The key to accomplishing this is converting to financial assets the projected cash flow of companies, households and other major components of the economy. Then a market for buying and selling these assets must be created. Selling assets with cash flows would produce capital, which would in turn spark growth in investments. Many types of assets are suitable for this scheme. Examples include the transmission operations of Tokyo Electric Power, agricultural land, fishing facilities and homes in the devastated area, factories and other production facilities, land ownership and fishing rights.

Many elements are needed to establish these sources of funds. Government initiatives are required to create profitable business models and attract investors. Support is needed for making companies profitable and generating returns from financing. Ownership rights must be organized and sold. Schemes should be created for funding reconstruction investments and new businesses. And Japan needs a framework for systems and policies that is centered on market functions. Potential sources of reconstruction funds are numerous. Revenue bonds backed by future earnings of public corporations are one example. A Tohoku Reconstruction Fund and fund for starting new companies, both funded by private equity from the private sector, are two more potential ways to procure funds. Use of funds from the Bank of Japan and the Japanese government to bring down the cost of fund procurement would also be helpful. For instance, this would allow creating an unrestricted financial market for the reconstruction of Tohoku. Forming this market would probably help bring in investments from outside Japan.

Germany's long-term purchases of electricity from solar panels at a fixed price (Feed in Tariff (FIT)) have proven to be successful at increasing the use of solar power. FIT guarantees a long-term cash flow for people and organizations that install solar panels. The cash flows create a financial asset that can be immediately securitized to procure funds. This system could be the starting point for the conversion of idle capital in the Tohoku region into investments.

Establishing a regional currency (credits) is a useful way to achieve the regional resource matching that I discussed earlier. I call this "a savings bank for kindness." That means people can accumulate and sell points for thoughtful activities. Using the Internet would permit the widespread utilization of this system.

(3) Formation of the key bodies of reform

Create powerful local governments, use elections to select leaders
Japan must conduct regional development programs that meet global standards. This will be impossible without powerful leaders who can eliminate the regulations, customs and other constraints that prevent economic rationality. Core regional governments must have elected leaders. Furthermore, these governments will have to become models for government decentralization and local governments. Government officials must investigate a broad range of possibilities for progress, ranging from regional legislatures to election system reforms and the establishment of special districts for reforms. Established interests (the greatest obstacle to rationalization) must be swept away. Education system reforms and training to foster people who can succeed on the global stage are necessary. Creating powerful local governments will also require new political parties and local political parties that can conceive and follow new philosophies. New media that are based on the Internet are needed too. All these new concepts should then be incorporated in the constitution. Eventually, these ideas should contribute to reforms of the Japanese government by adopting the direct democratic systems that are essential in today's age of networks.

Chapter 3 The Backbone of Industry and People's Lives – A Major Shift in the Energy Strategy

- ✓ Over the short-term, Japan will rely on nuclear power and LNG for electricity
- ✓ Japan should transit from centralized, high-output power sources to a dispersed smart energy system
- ✓ Japan should aim for a long-term conversion from nuclear power to renewable energy sources
- ✓ Japan needs to establish electricity supplies that can win the global battle for improvements in thermal efficiency
- ✓ Do not allow Tokyo Electric Power to become a zombie (another Chisso)
- ✓ Nationalize nuclear power plants

(1) Japan's current stage of advancement in energy and the limitations of nuclear power

Shift from large, centralized power plants to small, dispersed power generation
Over the years, economic development has always progressed hand in hand with gains in productivity. The driving force behind this progress has been advances involving energy. People were the first energy source. This was followed by animals, water wheels and windmills. The fossil fuel revolution that began in the 1800s

spawned today's culture of petroleum and electricity. But now we can see the end of the fossil fuel revolution. A turning point in the world's energy strategy is approaching. In the future, renewable energy and dispersed sources of electricity will take over. We have already witnessed revolutions of dispersion in the fields of information and finance. Now this transition is taking place in the energy field. Electricity will shift from large, centralized power plants to small, dispersed generating facilities. At the same time, this process will alter the structure of energy demand. We will see shifts from industry to consumers as the primary players in the energy sector and from industries that use large amounts of energy to energy-efficient industries. In the world of information and communications, the age of centralization based on large computers and wireline telephones has ended. Dispersion is now the key word as people use personal computers and cell phones. This change has fueled demand for a variety of devices and services that has created many jobs. Similar events will probably occur in the energy sector, too. This is why establishing a model for dispersed power sources is likely to become the nucleus of the creation of a self-reliant economy and place to live.

The background of Japan's national nuclear power policy and the high cost of nuclear power

Nuclear power has attracted much attention as a source of clean energy as the world abandons fossil fuels in favor of renewable energy. But the crisis at the Fukushima Dai-ichi Nuclear Power Plant is spotlighting nuclear power's defects with regard to safety. The crisis has made people realize for the first time that nuclear power actually has a high cost. We are also coming to see that nuclear power has been promoted as an industry that is vital to national interests. (Nuclear power technology is inseparable from political factors, namely the need to maintain the ability to develop nuclear weapons.) This resulted in pointless discussions with only two alternatives: support nuclear power or oppose nuclear power. Furthermore, these debates took place without a sufficient objective examination of the economic rationale and safety of nuclear power.

Kazuhiro Ueda (Professor of Kyoto Univ.) noted that economic advantages of nuclear power generation are one reason that Japan formulated a plan that emphasized this energy source. But the cost of nuclear power generation was underestimated. Issues involving the disposal of nuclear waste materials and other back-end processes were not adequately examined. Consequently, the enormous government expenditures required for nuclear power were not factored into the cost of generating electricity.

Professor Kenichi Oshima of Ritsumeikan University wrote a paper titled The Political Economics of Renewable Energy. In this paper, he says that nuclear power is an expensive source of electricity after including all expenses needed to produce electricity, including public-sector expenditures. We can only conclude that the economic benefits of nuclear power generation are merely a benefit that was fabricated by national governments. Although many types of technologies for generating electricity that have the potential for practical use have been developed, government expenditures to support of a particular type of power generation system has produced distortions in competition among different sources of electricity (Nikkei Shimbun May 19).

Nuclear power is the cheapest source of electricity based on official cost comparisons by the Japanese government and The Federation of Electric Power Companies of Japan (FEPC). According to the FEPC, nuclear power is ¥7.3/kwh compared with ¥10.2/kwh for hydroelectric power, ¥7.0/kwh for LNG, ¥7.2/kwh for coal and ¥12.2 for petroleum. Professor Oshima calculated actual costs at Japan's 10 electric utilities by using data from securities reports between 1970 and 2007. These calculations revealed that nuclear power is the most expensive source of electricity. He estimates that the cost per kwh is ¥3.98 for hydroelectric power, ¥9.90 for thermal power, ¥10.68 for nuclear power and ¥12.23 for nuclear power including the cost of pumping water. However, Professor Oshima did not incorporate public-sector expenditures for nuclear power, the cost for future generations to treat nuclear waste materials and compensation for any nuclear accidents. Furthermore, nuclear power has far greater fixed expenses than other sources of electricity. Consequently, the cost of nuclear power varies dramatically depending on a nuclear power plant's utilization rate and the number of years that equipment can be used. The FEPC's official nuclear power cost of ¥7.3/kwh assumes that a plant can be used for 16 years, which is the legally prescribed useful life. But this figure also assumes a utilization rate of 80%, which is about twice as high as the actual rate. After adjusting the cost to reflect these numbers, there is a dramatic rise in the actual cost of nuclear power.

Another noteworthy point is that the world has reached the point where even Henry Kissinger, the former U.S. Secretary of State, and William Perry, the former U.S. Secretary of Defense, support reductions of nuclear weapons and even the elimination of these weapons. In a 2009 speech in Prague, President Obama announced a broad-based U.S. stance as he called for a world without nuclear weapons. We will soon see the end of the age where countries used nuclear weapons to play poker. A new age is emerging in which the world will no longer rely on nuclear weapons to maintain peace among nations. Countries will clearly see that even if they have nuclear weapons, these weapons can never be used. Nuclear weapons that obviously cannot be used are meaningless with regard to military strategies. This explains why the world is approaching a time when nuclear power should be reexamined from the standpoints of both military and economic benefits.

(2) Direction of an energy strategy – More dispersed and renewable energy sources

Use dispersed energy sources to increase thermal efficiency

Converting to renewable energy sources is essential from a long-term perspective. With renewable energy, Japan could eliminate the annual cost of ¥17 trillion (more than 3% of its GDP) for fossil fuel imports. Nevertheless, Japan will still have to rely significantly on nuclear power just as in the past because of the much higher cost of crude oil and ongoing initiatives to cut CO2 emissions. Natural gas is attracting much attention as a bridge for the transition period from fossil fuels to renewable energy sources. CO2 emissions from natural gas combustion are 40% lower than from coal. A shale gas boom is occurring in the U.S. Technological advances have made it possible to extract natural gas that is trapped in shale. Production of shale gas has resulted in a big increase in the recoverable reserves of natural gas and caused the price of natural gas to plummet. Limits on natural gas production have disappeared for the foreseeable future. Expectations are thus high for the use of natural gas as a "bridge to a low-carbon society."

Fortunately, natural gas is well suited to generating electricity because this fuel has a high thermal efficiency and can be used for dispersed power sources. Cogeneration should be used in conjunction with this power generation to further improvement in thermal efficiency. Thermal efficiency estimates are 50% for LNG, 40% for petroleum and 30% for nuclear power. By comparison, thermal efficiency is 32% for automotive gasoline engines, 46% for diesel engines and 70% for electric cars.

Akira Ishii (Advisor for JOGMEC) provides interesting insights regarding the benefits of cogeneration. He points out that even though Japan uses 45% of its total energy consumption to produce electricity, approximately 60% of thermal energy is lost when electricity is generated. That means only about 40% of the original thermal energy of fossil fuels becomes electricity. More losses occur at the transmission and distribution stages. When electricity reaches the end user, only 25% of the original fossil fuel thermal energy remains. Existing technologies can be used to reduce this waste and use energy more efficiently while cutting costs, too. For example, switching from current coal thermal power generation to gas combined cycle generation would immediately raise the efficiency of generating electricity to more than 50%. CO2 emissions would drop by about 60%. In addition, large coastal power plants that are distant from where electricity is used could be replaced with dispersed energy sources that use fuel cells. If these fuel cells are placed in commercial buildings, hotels, schools, hospitals, condominium buildings and other locations that consume electricity, thermal energy that is currently wasted could be used for hot water and heat. Mr. Ishii believes that using this approach can boost effective energy utilization to as high as about 90%. (Economist May 24, 2011)

(3) Use the market economy as the base for energy reforms that utilize Japan's superiority

A national debate on establishing new energy policy

A fundamental shift in Japan's energy policy is unavoidable. The people of Japan must reach a consensus about how to achieve this change of direction. Along with the extensive disclosure of information, the public needs to examine the energy problem with the awareness that this issue affects everyone in Japan. This process should be used to determine the goals of a new energy policy. Conducting this debate is extremely significant in terms of educating the public and giving the public the responsibility to make decisions that affect their own future. Next, Japan needs to build a control tower for the supervision of energy. Existing government organizations for energy like the Japan Atomic Energy Commission, the Agency for Natural Resources and Energy, and the Advisory Committee for Natural Resources and Energy would be eliminated. In their place, a comprehensive energy strategy conference would be established under the oversight of the Cabinet Office as a new policy-making body for energy. This proposal also includes the creation of a Ministry of Environmental Energy.

Prime Minister Naoto Kan has announced that a Nuclear Power Accident Investigation Committee for the purpose of going back to the very first stage of creating a fundamental energy plan will be established. The prime minister also stated that Japan will consider the separation of the generation and distribution of electricity. At the G8 Summit Meeting held in Deauville, France , Japan made an international commitment to increase the use of renewable energy to 20% by 2020 or soon afterward. Establishing this goal was not a mistake. However, reaching this goal will require measures to give the Japanese public an even better understanding of the issues and win their commitment. Reforms of Japan's energy infrastructure cannot take place unless this is accomplished.

Japan needs electric power reforms that are rooted in a market economy

Competitive markets will be vital to reforming the electric power sector in Japan. Ikuo Hirata (columnist of Nikkei) notes that electricity costs more than twice as much in Japan than in South Korea and China. Early in 2011, Toray announced that it will build a carbon fiber factory in Korea. The low cost of electricity in Korea was a major reason that made this country an attractive site for a factory. Mr. Hirata also notes that Japan's deregulation of the electric power industry thus far has led to the new companies in the power generation business, lifting of restrictions on retail power sales to factories and stores, and other progress. Deregulation has also created the new business category of power producers and suppliers (PPS) that use the distribution lines of utilities for retail sales of electricity. But deregulation has been pointless because nothing has been done about the most important characteristic of the electric power industry: the dominance of Japan's 10 electric utilities. New power generators account for less than 3% of all electricity sales in Japan. Moreover, payments to use the distribution networks of utilities represents about 20% of the cost of power sold by these

new power generators (making the electricity expensive). There is virtually no competition among the major utilities. Making electric distribution networks easily accessible to many companies is essential to creating a competitive environment. Separation of power generation and distribution operations is the key to producing this environment. Japan's Ministry of Economy, Trade and Industry started aiming for this separation about 10 years ago but gave up because of intense opposition from the electric utilities. In the U.K., the Thatcher administration in 1990 divided the national electric power company serving England and Wales into three generating companies and one distribution company. These companies were then privatized and power generation was deregulated. For retail sales, 12 power distribution stations were privatized, approving new entrants to the sector. Promoting competition in the power generation sector, which represents half of the total cost of electricity, can yield significant cost reductions. Furthermore, increasing the number of companies that generate electricity makes it more likely that power interruptions can be avoided in the event of an accident at a major power producer. And if power distribution networks can be utilized at a lower cost, wind and solar power generation will be easier to use. (Nikkei Shimbun May 16)

Japan should take the lead in the renewable energy revolution – A new productivity revolution

Japan is moving ahead in some areas with smart grid trials. Dai-ichi Life Insurance has started monitoring electricity consumption on a real-time basis at 100 buildings it owns in the Kanto and Tohoku regions. When the limit for power consumption is reached, non-critical equipment is shut off one by one. (Nikkei Sangyo Shimbun May 18). This system makes it possible to instantly determine the status of power generation and use to facilitate the proper distribution of power and management of the balance between supply and demand. Using this smart grid technology would enable electricity to be used more efficiently.

No country in the world has more technologies and companies associated with the smart grid than Japan does. By taking the lead in the renewable energy revolution, Japan will be in an excellent position for a productivity revolution as well as for using associated technologies to create one of the country's largest industries. Japanese-style diversified companies have an advantage in this field because all environmental and energy technologies span many areas of expertise. Furthermore, these large companies have technologies that cover a broad array of areas. Examples include basic materials, semiconductors, heavy electrical equipment, communications, IT systems and many other fields. It is no exaggeration at all to state that Japan along in the world has all the technologies required for a smart grid. Toshiba acquired Westinghouse and has made nuclear power a core element of its business plans. Toshiba subsequently acquired Landis+Gyr AG, a Swiss company that is the world's largest producer of smart electricity meters, with a global market share of 32%. In addition, Toshiba is shifting emphasis to the field of renewable energy. For dispersed power generation, there are good prospects for the widespread use of micro gas turbines, fuel cells, solar cells, wind power, biomass power and other ways to produce electricity.

Assuming that the energy revolution eliminates the need for imports of fossil fuels, Japan could cut its annual expenses by ¥20 trillion. At a discount rate of 3%, this translates into capitalization of ¥660 trillion. In other words, investments in energy conversion have the massive economic value of up to ¥660 trillion. This is why Japan should use tax reductions and financial assistance to create systems to encourage the use of renewable energy to generate electricity.

(4) Dealing with Tokyo Electric Power – Create a firewall between guaranteed debt and the electric power business

The solution requires pragmatism

A natural disaster of unprecedented magnitude was the primary cause of the nuclear crisis at Fukushima Dai-ichi. But we must also recall that nuclear power originated as a national policy that did not take into account the associated cost. Due to these two points, there is no perfect solution in accordance with both laws and reason. Any decision will inevitably have defects and elicit criticism and dissatisfaction. The correct response must be selected from the standpoint of pragmatism. That means Japan should choose a solution that leads to a desirable result. What is the solution? Tokyo Electric Power (or its successor company) should continue to fulfill its vital historic mission of supplying electricity that is the lifeblood of Japanese industry. At the same time, the company must be a driving force behind the energy revolution centered on renewable energy and a network of distributed power sources.

Consequently, the worst possible option is to allow Tokyo Electric Power to survive along with an unlimited amount of obligations for the payment of damages. These expenses would be added to electricity bills. The resulting decline in new investments would greatly impede the energy revolution. Tokyo Electric Power must not become a company like Chisso that was allowed to survive solely for the purpose of paying damages for the problems it created.

Nationalize nuclear power

Japan should consider breaking up Tokyo Electric Power and creating a new Tokyo Electric Power. Gains from the sale of the company's transmission and distribution operations could be used for this purpose. Market capitalization of Tokyo Electric Power has already plummeted from ¥3.6 trillion to ¥0.63 trillion, a drop of ¥3 trillion. For all 10 Japanese electric utilities, market capitalization is down by ¥5 trillion over the roughly

two-month period from March 11 to May 17. Shareholders have already factored in the expected growth in costs for payment of damages and other items. Consequently, approximately ¥3 trillion can be procured by leaving payments for compensation, indemnification and other additional costs for the nuclear power crisis with the surviving company while creating a new Tokyo Electric Power that would receive all future cash flows. Regardless of what decision is made, Japan will have to devise a way for Tokyo Electric to play a major role in the energy revolution and construction of a smart grid.

As part of this process, Japan should nationalize all nuclear power generation. After all, Tokyo Electric Power is not the only operator of nuclear power plants where a significant increase in costs has been revealed. Private-sector electric utilities cannot be expected to continue paying the costs of nuclear power generation that began as a national policy. Electric utilities will be unable to pursue economic rationality as long as the current system of privately owned nuclear power stations is allowed to continue. In fact, this private ownership has become an obstacle to progress with the energy revolution.

Chapter 4 Money That is Hidden in Sources of Reconstruction Funds – Use Higher Wages Linked to a Weaker Yen and Higher Prices of Assets and Stocks

- ✓ The key to the success of reconstruction is to create a macroeconomic environment in which deflation has been terminated.
- ✓ In an environment with no deflation, higher wages backed by a weaker yen and rising prices of assets and stocks can be sources of funds for reconstruction.

(1) A weaker yen and the end of deflation can fuel the recovery process

End deflation with the reversal to a weaker yen

The disaster in Tohoku may very well bring an end to deflation in Japan that has persisted for two decades. One reason is a narrower gap between supply and demand along with the full-scale enactment of reflationary measures. Huge government expenditures will be needed for earthquake damages that total anywhere from ¥16 trillion to ¥25 trillion. Japan is taking immediate actions to supply emergency liquidity, too. Under normal conditions, Japan was taking only small reflationary steps. But after this catastrophe, the country must enact full-scale measures to return to inflation. As expected, Japan is making rapid progress with reconstruction and recovery activities. Manufacturing activity will almost certainly return to the pre-earthquake level by the fall of this year.

The second reason is that the unexpected G7 joint intervention in foreign exchange markets in response to the earthquake will probably end the yen's long-term strength. The G7 has intervened five times in the past. Every intervention created a reversal in a long-term foreign exchange rate trend. This time as well, prospects for success are good because the intervention is in step with fundamentals. The earthquake is forcing Japan to move even farther with monetary easing. At the same time, though, the U.S. and Europe are starting to consider an exit strategy for their own easy-money policies. These events point to growth in the gap between interest rates in Japan and overseas.

A reversal to a weaker yen would probably be the end of Japan's "lost 20 years." During the 1990s, the yen became extremely overvalued, rising to a level more than double that of its purchasing power parity. Naturally, this disparity made expenses at Japanese companies twice as high as the international standard. Since Japanese wages were double the global level, companies in Japan were forced to cut costs dramatically. Companies reduced their workforces and shifted from full-time employees to temporary workers. There was also a transfer of production activity to other countries. Japanese companies remained competitive because of these measures but the cost was a decline in wages. The result was a prolonged period of deflation. Similar events occurred starting in 2008. Deflation once again emerged in Japan as investors bought the yen to avoid risk. Japanese stocks became extremely weak as a result. However, a decline in the yen will make wages in Japan comparatively low, thereby creating room for wage hikes. This explains why a weaker yen would have the additional benefit of triggering a V-shaped earnings recovery at Japan's multinational companies.

(2) Make higher asset prices the source of reconstruction funds

Deflation in Japan – A situation where market prices are far below intrinsic value

Japan has accumulated immense reserves (hidden funds) over the past 20 years. The disaster will probably be an excellent opportunity to utilize these funds. These reserves are the yen's strength and deflation that lasted for two decades. A strong yen and deflation combined to bring market prices of wages, stocks, real estate and other assets to a level far below their intrinsic value. This gap between value and market prices is a type of reserve. The reason is that wages and stock prices will inevitably bounce back. If suitable reflationary measures return wages and asset prices to levels that reflect the intrinsic value, we will see increases in

wages and stock prices. These upturns would probably save Japan from its prolonged period of stagnation. Recoveries in wages and asset prices would be an excellent source of funds for reconstruction and recovery activities.

The BOJ can prevent the yen from appreciating and will expand monetary easing

The U.S. Federal Reserve Board has shown Japan an outstanding prescription for bringing an end to the yen's strength and deflation. When zero interest rates are ineffective, a country merely has to stick with a quantitative easing program. Starting QE2 at the end of 2010 has significantly enlarged the Fed's balance sheet. But deflationary forces were wiped out as stock prices rallied and the dollar weakened. The Bank of Japan appears to be following the Fed's lead. BOJ Governor Masaaki Shirakawa has said that the bank will do what is needed when necessary. BOJ Deputy Governor Kiyohiko Nishimura has proposed an expansion of quantitative easing by increasing asset purchases from ¥10 trillion to ¥15 trillion (at the April 28 policy-making meeting). Moreover, there should be no problem at all with guiding the yen lower now that the G7 has agreed to intervene to prevent the yen from appreciating. The stance of the BOJ will play a big part in creating market sentiment that the yen has peaked. Even if the global decline in the dollar continues, an appreciation of the yen to more than 80 to the dollar is inconceivable, or would probably be very brief.

The "price decline reserve" will be extra earnings

As the Fed has demonstrated, quantitative easing has a big impact on prices of stocks and other assets. Japanese stocks have a yield (earnings per share divided by the stock price) of 7%, which is a 6 percentage point premium of the long-term interest rate of 1%. This is an extremely high premium both in historic terms and in relation to the premiums in other countries. Japanese stocks are obviously undervalued (there is a gap between value and prices). We can view this 6% premium as a "price decline reserve." Prices of Japanese stocks have dropped by two-thirds over the past 20 years. This translates into an annual decline of 5%, so investors have been buying stocks at prices that factor in this 5% downturn. But if stock prices have fallen to a point where they cannot go any lower, this 5% "price decline reserve" will become extra earnings on investments.

Higher stock prices will be the start of a virtuous economic cycle

If the BOJ learns a lesson from the Fed and establishes a floor for stock prices by increasing asset purchases, investors will rush to buy Japanese stocks to they can capture the 5% extra return. Real estate prices will benefit from the same investor sentiment. The spread (return on investment minus the long-term interest rate) on Tokyo real estate is the highest in the world, which indicates that real estate is undervalued.

Japanese stocks and real estate shed approximately ¥1,500 trillion of market value during the past two decades. Wealth of almost ¥100 trillion, which is equivalent to almost 20% of Japan's GDP, evaporated year after year. Japan's economy was battered by a severe negative asset effect. Investors became extremely averse to risk and the decline in household financial income caused domestic demand to plunge. However, the current prices of assets are still well below the proper level. Low prices have created a "negative asset bubble." If Japan enacts full-scale reflationary measures following the earthquake, we are very likely to see a shift from asset deflation to asset inflation. The result would be the opposite situation of what happened in the past: a positive and massive asset effect of ¥50 trillion to ¥100 trillion every year.

The Japanese government must be committed to ending the "negative bubble"

The shockwaves of the Lehman Brothers collapse have dissipated without producing a severe economic downturn. Making this possible was the success of the U.S. Troubled Assets Relief Program (TARP) that had a total budget of $700 billion. Actual expenditures amounted to $411 billion. The bank support program, which accounted for 60% of these expenditures, has already become profitable (repayments exceed expenditures) as banks made repayments and the government sold assets. Most of the remaining TARP funds are the stock of AIG and automakers General Motors and Chrysler. Losses can probably be avoided on these holdings, too. For example, the government sold some of its AIG stock holdings in May. As a result, this massive financial assistance program will most likely end up costing the government nothing (or producing a small gain). Rising asset prices are the reason for this success. The U.S. government bought assets at market prices that had been beaten down to far below the fair value of these assets. The resulting upturn in prices not only stabilized the economy and the financial system but also enabled the assistance program to generate a profit. Prices of U.S. corporate bonds and debt backed by housing loans plummeted at the end of 2008. But the subsequent recovery in market prices was irrefutable proof that these price declines did not reflect the true value of these securities.

A "negative bubble" for asset prices (market prices far below the true value) is a sign that markets are unable to function normally because fear is driving the actions of investors. But the effective government response has simultaneously produced corrections in prices and an economic and financial recovery in the U.S. Japan can do exactly the same thing. Japan has an excellent opportunity to push up wages and stock prices if the correct actions are taken. This is the reserve that Japan has accumulated over its "lost 20 years." At this time of unprecedented difficulties in Japan, now is the time to use this reserve. There is no other course of action.