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# Geothermal Rights and Problems of Legislation in Japan

SUSUMU NAKAMURA

TAKEO NAKAHARA

HIDEO IGA

*Japan Geothermal Energy Association, 1-3 Yurakucho, Chiyodaku, Tokyo, Japan*

## ABSTRACT

The method of development of geothermal power, which is recently receiving great attention as a form of domestic underground energy resource, is presented. It is not a mineral, however, so it does not come under the Mining Law; and rights pertaining to the development and usage cannot therefore be based on this law.

Geothermal power exists mostly in volcanic and hot spring areas, with practically the same quality and form as the hot spring. Development is similar to hot spring drilling so rights for possession and usage are obtained in accordance with the provisions of the Hot Spring Law. At present, applications for hot spring drilling are made to the governors, mayors, and other relevant officials of the various prefectures, cities, etc., before development can be carried out. However, because this law places great importance on the administrative control of the rights for usage of hot springs, these rights conform to and are included in the civil laws concerning land possession and usage rights.

Also, many geothermal power areas are within parks of great natural beauty and the development of geothermal power is thereby restricted by the Parks Law. Application must be made to the Director-General of Environment Agency in the case of national parks, and to the prefectural governors in the case of designated parks, for the collection and use of soil and rocks, the construction of new buildings, etc.

Many geothermal power development areas are also in national lands. Sales and leasing of these lands are mainly to the public or enterprises benefiting the public under the National Properties Law and the National Lands Law. Under the Forestry Law, deforestation is restricted even on private land.

In addition, geothermal electric power generation facilities are included as thermal power facilities under the Electricity Utility Industry Law. A developer of geothermal power who wishes to have an enterprise to supply electricity for other than his own use may have a contract to supply electric power wholesale to the Electric Power Co., transmit electricity to his own nearby businesses, supply steam only, have generating facilities built by the Electric Power Co., etc.

It is now necessary to establish a systematic organization to handle the above problems to promote the development and usage of geothermal power and to stabilize the question of right. For the present, however, a bill is being considered

to designate geothermal power development areas and to determine the developers.

## INTRODUCTION

A bill for promoting the development of geothermal resources is about to be submitted to the Diet in the form of a resolution by House members who are associated with the Geothermal Resource Development Council of the Liberal Democratic Party. The oil crisis originating from the Middle East conflict at the end of the year before last shook the roots of the economy of our country, showing that the reverse side of "great Japan with economic power" was in reality a "great country for processing trade" or a "small country with few natural resources," and threatened an economic crisis devolving on energy resources in Japan.

It may well be said opportunely that both the government and civil circles, under such circumstances, have come to recognize more strongly the importance of promoting the development of the geothermal energy which exists abundantly in this volcanic country; it is the fourth in rank with thermal power, hydraulic power and atomic power. In the past, the country enacted special laws for developing energy resources, and has assisted and protected their development. These included oil, natural gas, uranium ore, coal and others. As for the geothermal resource, however, there is currently no such special law for promoting its development and utilization. It is, therefore, indispensable for geothermal developers to have a special law enacted, whereby their rights are expressly defined and properly protected at the national level. It is a highly significant step forward to see a trend toward enacting a law for its development and utilization.

For developing an area where geothermal resources are latent, the investigation of right relationships between land-owners and users, and investigation of indications on land surface, and so on are done first. Then, after completing basic investigations in geology, geophysics, geochemistry, and structural and survey drilling, investigations of location conditions and construction of a power plant are conducted in that order. There is a case where these are accomplished concurrently. Furthermore, for developing geothermal resources for electric power, examinations are repeated in every technical field such as geology, geophysical exploration, measurement, boring, machinery, electricity, environmental protection, and so on.

In general, many of the areas latent in geothermal re-

sources are located in mountainous districts having volcanos and hot springs and also inside natural parks; therefore, coping with environmental problems is extremely important. Besides, since the rights relevant to geothermal development are neither clear nor stabilized at present, agreements and coexistences with nearby cities, towns and villages become a major precondition.

Accordingly, in order to promote geothermal resource development without hindrance, it is necessary for the country to stabilize the rights of geothermal developers through registration. The geothermal right referred to in this symposium is generally conceived as something like "a right to prospect and develop geothermal resource and utilize it for electric power and other purposes." There is no such right firmly established in our current legal system; nor is the term "a geothermal right" already in use. But the people who have interest in geothermal development strongly feel that legislation should be introduced to enable them to develop and utilize, under legal protection, geothermal resources for electric power and other purposes, especially when the oil situation is difficult and energy is in short supply. Thus, it is necessary to enact a law incorporating all procedures necessary for promoting, positively and systematically, the development of geothermal resources in Japan.

## LEGAL BACKGROUND

Since the current legal system in Japan lacks a basic law which ensures the right of geothermal development to the developer, a developer must file an application for digging in accordance with the existing Hot Spring Law, inasmuch as the geothermal substance that is an object for development and utilization is of the same quality as a hot spring (mineral water, heat, steam and gas issuing from under the ground), and also file an application in accordance with the Natural Park Law, because geothermal resources are often found at natural scenic places inside national or designated parks.

The Hot Spring Law, however, requires as a precondition the acquisition of the ownership or leasehold of the land where drillings are conducted. The landownership or leasehold provided for in the Civil Law controls not only the land surface but the space directly above or under the land. (The Civil Law does not specify the height and depth, but it is reasonable to interpret them as within the extent human beings can utilize at present.) Furthermore, landownership is a right to control land freely unless otherwise specifically restricted by other laws.

The Hot Spring Law was enacted in 1948. It is only a procedural law for administering hot spring hygienics, and as to the right relationship on land surface, it is interpreted that the right to control a spout is owned by a person who found the hot spring erupting from under the ground to the land surface, under a precondition that the land with a spout is owned or leased by the same person; this right is called the right of hot spring in the Hot Spring Law. (This right is called the primary right of hot spring, and the right to draw hot water off a spout is called the secondary right of hot spring.)

The right of hot spring is interpreted as one mode of exercise of landownership or leasehold (ownership or the right of use of the ground with a spout), which includes by nature the right of hot spring. But, as to the right to the source or vein of hot water underground which is regarded here as the geothermal resource, the Hot Spring

Law does not define clearly to whom it belongs or by whom it is controlled.

Accordingly, if we base on the interpretation as stated above that a hot spring or a geothermal resource deposited underground is controlled by the owner or user of the land, a geothermal developer has to face many difficult problems concerning right relationships. (There is no question if the developer owns the land, but purchasing an extensive tract of land at the beginning of development is normally impossible because of drilling risks, conditions of location for a power plant and other problems, and, therefore, it is common to rely on leasing.) If a developer desires to borrow land, the landowner usually imposes conditions some of which are very difficult, and, even if the developer succeeds in obtaining the lease, the landowner may take unilateral actions such as refusal to extend the lease contract term, cancellation of the lease contract, and so forth when the development is on the track. Thus, the developer is placed in a weak right status without stabilization on and under the ground.

When prospecting or boring for underground minerals is conducted under the Mining Law, the land must be borrowed to obtain leasehold, because the law does not authorize the right of use of the land surface; but the underground minerals designated by the law inside a mining area belong to the mining-right holder and exclude the right of the landowner to control the underground of his own land and, thus, makes the mining right a separate and independent right from landownership.

Even if agreement is not reached with a landowner, the Director of International Trade and Industry reserves for mining-right holders an arbitration authority on the entry, use or expropriation of land, use of land and water inside a pit, and so on. As stated above, the country furnishes mining-right holders with various benefits for promoting the mining industry. In order to develop and utilize geothermal resources without hindrance and with stability, it is considered necessary for the country to enact a special law establishing some right, a geothermal right, which can be exercised for the development and utilization of geothermal resources within a fixed area (tentatively called the geothermal area) as in the case of the mining right, and also to exclude the right of a landowner at least as far as the underground geothermal resources are concerned.

In Italy and New Zealand, which are advanced countries in geothermal development, geothermal laws are already stipulated and, as in the case of the mining right, the geothermal right (prospecting, development and utilization) is granted by the government. It is noteworthy that a landowner is not allowed to object to geothermal development, but, instead, the landowner receives an appropriate compensation if the deposit is located at shallow underground levels, while he cannot insist on compensation or ownership if the deposit is located deep under the ground. In the USA, a geothermal resource lease law was enacted in 1970, and developers are granted the right to lease national lands or public lands for developing geothermal resources. The above examples indicate that each country is preparing laws and regulations under a distinct acknowledgment of the importance of geothermal development.

## LEGAL PROBLEMS FOR PROMOTION

The development (survey, collection, utilization, etc.) of geothermal resources in our country has been done according to the Mining Law since the Meiji Era. The minerals to

which the Mining Law is applied as the objects of the mining right are coal, oil, combustible natural gas, uranium ore, and so on, in addition to gold, silver, copper, and others. From a standpoint of securing energy among others, the country has enacted special laws for the cultivation, promotion and rationalization of main mineral resources, recognizing strongly the importance of government participation and promotion through the laws. For example, in order to encourage enterprises to promote development of domestic energy resources, the Oil and Combustible Natural Gas Resources Development Law, the Power Source Development and Promotion Law, the Uranium Ore and other Nuclear Raw Material Development and Promotion Law, etc. were implemented in 1952. As to oil and combustible natural gas, it was intended to improve digging methods and to promote prospecting in order to contribute to the public welfare through rationalized development of such resources. As to power source development, it was intended to prepare facilities necessary for generating hydraulic, thermoelectric and atomic power in order to increase the power supply and to contribute to the development of the industries in our country. Also, it was intended to promote extraction of uranium ore.

Since the oil crisis at the end of the year before last, the necessity of developing domestic energy resources has been felt more strongly, and, as a source of domestic energy, the geothermal resource has drawn attention of both government and civil circles. Since the geothermal resource is not an object designated by the Mining Law and there is no other law directly connected with its development and utilization, it is felt strongly that a basic law should define the nature and position of a right which can be called a geothermal right. After adjustment with existing related laws (Hot Spring Law, Mining Law, National Park Law, National Forestry Law, Power Enterprise Law, etc.), the Mining Companies Council (eight major companies and the Nippon Jukagaku Kogyo Co., Ltd., the Secretariat of the Japan Mining Association) has started deliberations on the draft of a law since the year before last. After passing through the steps stated hereunder, it is understood that the draft will be formalized into a bill for the Geothermal Resource Development and Promotion Law which will be submitted to the Diet shortly.

### Legal Problems Hampering Development

Since there is no law directly aiming at the development and utilization of geothermal resources, a developer wishing to prospect and develop the resource has no choice but to apply for hot spring digging according to the Hot Spring Law. That is, according to the law, hot spring is "hot water, mineral water and gas (excluding natural gas containing hydrocarbon as a main ingredient) which is 25°C or over in temperature and contains one of the 19 substances listed in the separate table." Because steam and hot water, the objects for development and utilization of the geothermal resource, fall in "hot spring" designation in the same law, restrictions under the law are unavoidable when the resource is developed. As the Hot Spring Law defines "hot spring" from a welfare-administration aspect as a resource for sight-seeing and medical care, placing emphasis on the protection of the hot spring and the adjustment of its utilization, it controls hot spring diggings from the administrative side but not from the side of rights relationships or the right of hot spring. Thus there are many cases of conflict with landownership and other rights.

In applying for drillings for hot water resources, the ownership or leasehold of the land where borings are made is a precondition. Besides, in our country, where the private property system or the landownership system is absolute and inviolable, a landowner may insist on many conditions (use of the hot spring, high land price, strict conditions for the lease, and so on) to be fulfilled before the landownership or leasehold is transferred to a developer wishing to develop geothermal resources, and, thus, land negotiations often labor under difficulties. The land for geothermal development is located in a forest or a field within a volcanic zone and, in many cases, it is a national forest or field. The use of land for geothermal development inside national lands is subject to the restrictions of the National Property Law, the Forest and Field Law and the Forestry Law. As the keynote of such laws is that the country owns underground springs, steam, and hot springs inside national lands as their components, a developer wishing to lease national lands is obliged to accept a one-sided contract prepared by the government in the negotiations with a local forestry office. For instance, there still exists a government notification (Notification No. 305 of the Forestry Agency, issued in 1968) instructing that 30% of the hot water or hot springs shall be the property of the country. Furthermore, electric power enterprises and the like are authorized to purchase or lease national lands if they are to be used for the public or for public utilities, whereas other enterprises are not allowed to purchase or lease national lands exceeding 5 hectares in area unless they are used for the public or for public utilities. There is no problem if geothermal electric power generation and the utilization of hot water are for the public or for public utilities but, if for other purposes, land of less than 5 hectares may be insufficient to meet the requirement for geothermal development. Such being the case, geothermal developments inside national lands are placed in an uneasy status. On the other hand, deforestation of a national forest, public forest or private forest is subject to various restrictions based on the Forestry Law.

In the meantime, geothermal zones are mostly located in volcanic zones and especially in areas where hot springs erupt abundantly. Those places are normally scenic spots within natural parks and, therefore, many restrictions are imposed upon geothermal developments (through the Natural Park Law and the Pollution Control Law) from the standpoint of protecting nature and the environment and preventing pollution. Although the Natural Park Law provides that, as for the activities of enterprises inside natural parks, attention will be paid to the adjustment of rights and benefits owing to the enterprises (such as the right of hot spring, mining rights, and so forth based on landownership or leasehold by the enterprises) the adjustment tends to lean toward the maintenance of natural scenery, much hampering geothermal development aimed at the contribution to the energy supply. For instance, there is an agreement of March 1972 between the Environmental Agency and the Ministry of International Trade and Industry which restricted geothermal power generation to six areas in the whole country in order to protect environment and to prevent pollution.

In view of the recent movement for energy development, and also from the standpoint that energy development can be harmonized with nature for coexistence, the Ministry of International Trade and Industry has indicated its preference toward easing the above agreement, but the agreement still remains as a cause of delay in the development plans of new geothermal enterprises.



On the other hand, according to the Electric Power Enterprise Law, geothermal power generation facilities are treated like those for thermal (conventional-fueled) power generation, and the machinery and equipment used for geothermal power generation are treated as electric facilities whose maintenance and installation are governed by the law. However, regarding entry, use or expropriation of land owned by other persons, such privileges are authorized by the same law and the Land Expropriation Law to electric power enterprises, but not to geothermal developers. Accordingly, it is necessary to establish a new legal framework in which geothermal developers can advance their land counter-measures without difficulty in each stage of prospecting, development and utilization.

In addition, in the case where a geothermal developer intends to utilize geothermal resources for generating electric power, he cannot install a power plant nor supply electric power unless he has the license for an electric power enterprise required by the Electric Power Enterprise Law, except for power generation for his own use. One way he can choose is to obtain a permit for vending wholesale power to an electric power enterprise.

Contracting and negotiations with the power enterprise are necessary for it. Also, the geothermal developer can contract with a general electric power enterprise (power company) for transmitting power generated for his own use to nearby factories connected with the developer on behalf of the same power company; or, by concluding a contract with a power company, he can have it construct a power plant to which the geothermal developer simply supplies steam.

Accordingly, as a legal problem in geothermal power generation, it is desirable that the wholesale supply system, transit system, steam supply system, and so forth described above are legalized for geothermal development.

### **Mining Right and Ownership or Lease**

As for geothermal resource development, not only in foreign countries but also in Japan, geothermal power plants have been constructed. Those in Japan are located at Otake, Matsukawa, Onuma, and elsewhere, and other development plans are being made. The steps in the development are, as in the case of development of mineral resources designated by the Mining Law, land surface survey, trial boring, and collection. The start and implementation of mining are premised on the acquisition of landownership or leasehold. Under the Civil Law of our country, landownership is a private right which is absolutely inviolable and controls works above and under the ground for use, profit and disposition. Unless otherwise provided in laws for when land is used for public welfare, it is a principle that a landowner can freely dispose of any component of his land, including minerals. Against this principle, the country enacted the Mining Law on underground minerals and established the mining-right principle separately from landownership, excluding the minerals designated by the law from the object of landownership; the excavation of the minerals is possible only by the mining-right holder. The law provides that the mining right is a public right approved by the country, which is equal to a real right under the Civil Law as an exclusive private right on development and utilization of such minerals; it is a separate and independent right from landownership and can inclusively control unexcavated minerals upon registration.

The mining-right holder, therefore, is competent to refuse any claim from the landowner or the land user on the underground minerals designated by the law.

As stated above, an enterprise is free in mining under the permission of the country, which has authority to grant a right to collect and own unexcavated minerals. But, although a landowner has no right on underground minerals, he has a right to use of his land surface. Accordingly, before an enterprise enters or uses the land surface for investigation, it has to acquire a right to use the land surface regardless of whether the land is located inside or outside their mining area. (There is no such problem if the enterprise purchases the necessary land, but the land for geothermal development is normally on a long-term lease basis, and more national lands are leased than public or private lands.) After borrowing the necessary area of land surface, the mining-right holder can use the underground of his mining area and its related underground for borings and pits to the extent necessary for mining, and, therefore, he is not required to obtain the right of use of the underground separately.

The same applies to the mining outside under the land surface he is entitled to use. A landowner, however, still has a right to the use of the underground of his land, and this right is not totally suspended by the introduction of the mining right. For instance, he can dig a well if it is not for collecting minerals. So, it may happen that mining under the land surface belonging to the third person is hampered by digging of a well by the third person. Also, there is a case where a landowner does not agree to the lease of his land from the beginning. In such a case, the adjustment of interests of both parties becomes necessary, but the Mining Law does not leave it to the free contract of each individual and approves a special right of use of underground where necessary under certain conditions; and, if a difficult situation arises, the following measures are taken. That is, regarding land entry, cutting of bamboo and trees, use and expropriation of land surface (use of a pit entrance on land surface, and so on), the mining-right holder can ignore the right of a landowner according to the permission of the Director of the International Trade and Industry Bureau, and is allowed to use or expropriate a certain space of land.

As stated above, the Mining Law was enacted independently, with an object of establishing a fundamental system for mining in order to increase public welfare by developing mineral resources in a national way, and, as a law which can restrict landownership provided in the Civil Law, it is intended to contribute to the stabilization of right-relationship, for those who are willing to undertake mining.

### **Rights Under the Hot Spring and Civil Laws**

The development of geothermal resources follows each step of prospecting (land survey, land entry and trial-well drilling); development (production-well drilling); planning of a plant; and industrialization. For prospecting and development, it will be necessary to own or borrow necessary land and to apply to the Prefectural Governor for diggings and borings according to the Hot Spring Law, until a geothermal basic law is enacted. The Hot Spring Law currently in effect was enacted in 1948, but, because the law was mainly for administrative control of diggings for hot springs and not for defining the right-relationships for hot springs or the right of hot spring, the legal relationship surrounding the right of hot spring has been left extremely unclear for

more than 20 years. Particularly, in the case of a hot spring digging on leased land, there have been many complicated problems on the relationships between the right of hot spring and landownership or leasehold.

The development of geothermal resources is being emphasized recently, and the method for expediting the development and introduction of an appropriate legal framework is being discussed, and there is no choice at present but to treat geothermal resources as hot springs under the Hot Spring Law. As a result, there arise complicated problems on the relationships among the rights to use geothermal resources such as steam and hot water, natural eruptions from underground, landownership, and leasehold. The relation of the Hot Spring Law to landownership and leasehold under the Civil Law and also to the Mining Law is explained hereunder, placing particular emphasis on the Hot Spring Law and the history and transition of the hot spring concept.

**Two types.** Hot springs are of two kinds, naturally erupting springs and those artificially dug. Until the end of the Meiji Era, almost all hot springs were naturally erupting springs.

Those hot springs were considered by villagers as common assets belonging to their communities, because they had no idea of controlling them privately, thinking that "the hot spring that came out of our land belongs to everybody." At the same time, they thought that not only the hot springs which came out of the land surface but those which might someday come out belonged to the communities. In a sense, the right of hot spring was of the same nature as the right of the commons (Iriai).

Through the reform of the land system (revision of land tax), private landownership was established under the Civil Law, and it was made clear that this modern landownership could control the space both above and under the ground and, therefore, the owner of the land with a spout could control the underground hot spring (the source or vein of a hot spring). But the old practice of common control over hot springs by village, prefecture or country before the Meiji Era (before land tax revision) continued even after Meiji times and conflicted with the modern landownership provided in the national law. The solution was sought in a different way depending on the conditions of each hot-spring area. In the case of Atami, the ownership of land with a spout was returned to the country, and the people who had had the right to use the hot spring since the old days concluded land-lease contracts with the country and paid fees to the country for drawing on the hot spring. In other cases, the country transferred hot springs to prefectures, cities, towns and villages, or the land with a spout was conceded to a landowner according to the Civil Law. (Some landowners could not freely use the hot springs erupting from their own lands because of the old practices on the use of hot spring.) Or, a hot-spring area was divided among various people in order to get rid of common control, and each person registered his land for complete control of his hot spring.

In the Taisho Era, as capital and labor were invested in artificial diggings, this trend was intensified and the right of hot spring under the old practice changed its nature and eventually disappeared. In the Showa Era, artificial diggings and private hot springs became common. However, when the war started, although the ownership of hot springs based on landownership was guaranteed, each prefecture stipulated

regulations for restricting diggings and uses of hot springs, and the police were authorized to control them or to issue permits, because the principle of the Civil Law was that ownership was free within the scope and restrictions of the laws. As the war progressed, diggings of new hot springs came to a standstill due to the decrease of tourists, material shortages, and so on.

After the war, expanded democratization and individualistic ideas weakened the controlling power of the village groups and the police, and this trend accelerated the private ownerships of hot springs. In 1948, the current Hot Spring Law was enacted, and the past police administration was changed to the current welfare and health administration.

Different from the control of hot springs in prewar times, the current Hot Spring Law is not for prohibiting the acquisition or utilization of hot springs, but for confirming the private right to hot springs. Under such preconditions, the Law restricts or controls digging for hot water only when it has been found to be against public welfare, and leaves the right of permission to the prefectural governor. Also, the hot spring right is interpreted as one mode of exercise of landownership or leasehold and, therefore, the governor must permit digging if there is a specific reason.

**Spout right and spout foundation.** Regarding the rights of hot spring at the land surface, middle underground and deep underground, there are the spout right, the ownership of the spout foundation, and the right to use of spout foundation on the land surface, and also the ownership of the spring "vein" under the ground, each of which has substantive legal problems.

A spout or a headspring on the land surface can be physically controlled and utilized by a person. The right to control a spout from which a hot spring erupts is the spout right, and it is inclusive of the drawing and utilization of hot water, additional diggings, installation of a pump, etc. This right is called the primary hot-spring right and so is called hot spring ownership. (The secondary hot spring right is a right to draw or supply hot water.)

The ownership (and the right of use) of a spout foundation is the ownership (right of use) of the foundation of a spout from which hot water erupts. This right is distinguished in conception from the above spout right, but the ownership of the spout foundations is part of landownership, which has inclusive control over the land including spout foundation. But, under the modern landownership system of the Civil Law, as a realistic measure to harmonize both rights, there are many cases recently in which the spout right (the primary hot spring right) is treated as an independent right separated from the ownership of the spout foundation, by splitting the space of the spout foundation; thus, a new technique is used to make both rights coexist at the same level. A court has given legal approval to this new method. This means that economic advantage of spout control is so great that there are strong social and economical demands to treat it independently from the economic advantage of spout foundation control. This method, however, is after all a matter of handling and, from a legal point of view, the spout right is unstable since it is included in the ownership of the spout foundation. To make the right stable, the spout right holder has to acquire the landownership or leasehold and, if a hot spring resulted from digging, he must acquire the spout right as the digger on his own land or on the leased land. If the land is leased, the landowner may cancel the lease contract or refuse to extend the lease term. In

such a case, there remains a question whether or not the spout right (right to utilize the geothermal resource) can be reserved continuously for geothermal development even after the leasehold has expired.

According to the judicial precedents of the aforementioned court, there is a possibility that the spout right is treated as a separate right from the ownership of the spout foundation. Even if it is possible, the developer has to negotiate with the landowner on the splitting of the spout foundation. In the meantime, if the landowner does not agree to the extension of the lease term, or proposes to cancel the lease contract, the developer can insist on certain terms. That is, when the lease contract was concluded with the landowner for hot-spring digging for geothermal development, it was naturally anticipated that the lease would last for a long period and, therefore, if the landowner cancels the contract unilaterally, he should pay compensation for the damage; and also, if the landowner refuses to extend the lease term, he must give an acceptable justification, because the lease term itself is only for setting a period during which the amount of rent is fixed. It is well known that the government has recently been giving legal protection to leasehold.

**Source and vein rights.** A hot-spring source and vein are hot water under the ground to which a person's realistic control cannot reach, unlike a hot spring at the land surface. Accordingly, as with the mining right to underground minerals, the right to such an underground spring is a conceptual right which can be managed or controlled with the approval of the society. Underground minerals, however, are legally approved as the object of the mining right. In this respect, the mining right is different from the right to the underground hot spring vein, which is not the subject of a special law. The Hot Spring Law covers hot springs on the land surface as the object of the law, but it does not clarify the right-relationship on underground hot springs.

Since the modern landowner controls, in principle, the space directly above and under his land, an underground hot spring (underground geothermal resource) constitutes part of the land which is owned and, therefore, theoretically the ownership of the underground hot spring vein cannot be recognized as an independent right separated from landownership. In this respect, the Hot Spring Law, as stated above, does not specify the owner of the right to the underground hot spring, while the Mining Law expressly defines the right to underground minerals.

In the past, underground resources were considered as public property and, therefore, there was some opinion that the right to utilize a hot spring, that is, the right to use public property approved by the country, should be recognized as the hot spring right, a separate and independent right from landownership like the mining right; but, under the current ownership and private-property system, the Constitution does not allow exclusion from landownership of underground hot springs (geothermal resources) which are an object of private ownership (landownership) unless otherwise provided in a law.

Accordingly, as to an underground hot spring resource (underground hot spring vein) to which a realistic control cannot reach, it is necessary to have a conceptual control system whereby the underground hot spring can be managed and controlled through social agreement. Here is a defect in the Hot Spring Law and, because of this defect, the right to own or control geothermal fruits remains a fundamental problem for discussion.

Such being the case, if the underground hot spring resource cannot position itself in a unique control relationship similar to that of minerals under the Mining Law, and if there is no course but to interpret it for the time being as an object of landownership or leasehold, the first thing for the developer is the acquisition of landownership or a leasehold. This is currently the only assurance regarding the right to the geothermal resource, but, in the case of leasehold, the right is still unstable.

In prospecting a mineral ore, an inclined boring method may be used. When ore is found outside the leased land on which inclined boring began, the mining-right holder can control and own such ore even though the ore is deposited under the ground belonging to a third person; but, in the case of inclined boring for the geothermal resource, it is necessary to obtain the ownership or lease of the land under which the geothermal resource was found, otherwise the geothermal fruits do not belong to the developer. Meanwhile, the land under which the geothermal resource is deposited is much wider than the land directly necessary for development and utilization. Consequently, since landownership or leasehold has control only directly above and under the land, the right to the underground hot spring and the ownership or leasehold of the underground hardly coincide with the above right in area, and the scopes of those rights remain as a problem to be solved. Because of such instability and complexity of the rights relationships, the introduction of the concepts of geothermal area and geothermal right is strongly desired. As stated above, in order to establish a firm right to geothermal fruits, it becomes necessary to expressly define in a law the geothermal right as a right independent and free from landownership so that, as in the case of the Mining Law, geothermal developers can smoothly promote their enterprises without experiencing unnecessary frictions and confusions with other persons connected with the land.

### Legislation in Foreign Countries

The countries which have introduced legal systems similar to our Mining Law include Italy, New Zealand, and other countries advanced in geothermal administration. Although there are some differences in legislation from country to country, each established laws on geothermal development with a clear consciousness of the importance of development.

**Italy.** In 1927, a Mining Law was introduced as a general law in Italy. It is applied not only to minerals but to underground energy that can be developed for industrial purposes.

Geothermal energy, such as steam and gas, is treated as a kind of mineral of national importance, and the right of trial drilling or exploitation is granted by the government. The government, however, grants such a right only to applicants who have specified amounts of funds and recognized technical ability. On this point it differs from our Japanese Mining Law, which is more flexible in the qualification of applicants, and can grant such a right to, for instance, the applicant who applied first. Also, the Italian landowner inside the geothermal area approved by the government is not allowed to object to the use of his land by an authorized geothermal developer, but can claim an appropriate amount of compensation.

**New Zealand.** The Geothermal Energy Law of New Zealand was enacted in 1953. The right of prospecting,



exploitation or utilization is authorized by the government under specified conditions. The authorized developer has special privileges of entry, use and expropriation of land authorized, regardless of its surface or underground. The landowner can claim compensation for the use of the shallow underground near to his land surface, but not for the deep underground.

**The United States.** A Geothermal Steam Law was introduced in the USA in 1970. For promoting the development and utilization of geothermal steam, the government authorizes geothermal leases in principle for 10 years on national lands, public lands and the land inside certain areas designated by the government. The rent is a fee for using the land, equivalent to 10 to 15% of the proceeds of the steam the developer has received. The space necessary for a geothermal area is determined to be 2500 acres.

As stated above, the advanced countries regard geothermal development as an important industry in line with national objectives. For this reason, they have arranged legal systems necessary for developing geothermal resource positively, by defining the related rights, by giving privileges of land expropriation, and by taking other appropriate measures.

## DIRECTION OF GEOHERMAL LEGISLATION

The direction of geothermal legislation in Japan was described above as the problems in the current legal system. In all cases, geothermal developments are not receiving legal support for protection and assistance, and the problems are actually causing hindrances to the developments. This is because the demand for promoting geothermal development is, as a matter of fact, not reflected in the existing laws. Therefore, geothermal development is not properly positioned in the current legal system, unlike other enterprises protected by their related laws. Then, to which direction should this needed geothermal legislation proceed?

First, is it possible to attain the object by amending the existing laws? In case the Hot Spring Law is to be amended by changing the definition of "hot spring" to distinguish actual hot springs from geothermal substances, and by giving geothermal substance a legal standing as subject of a real right, as with minerals under the Mining Law it is not sufficient to change part of the law; the total structure of the law has to be changed, because the law takes a passive stance looking only to the conservation of hot springs, while the object of geothermal development is to promote industry by increasing energy. Thus, it is difficult to attain the object by changing the Hot Spring Law.

In the meantime, as to adding geothermal substance to the minerals designated by the Mining Law, geothermal substance, like stone and gravel, does not fit to the Mining Law in view of the establishment of limited area, the chemical and physical properties, and so forth which are requisites for minerals. Besides, unlike mining enterprises of various sizes working under mining liberalism and equal opportunities, geothermal enterprises have to be major enterprises with sufficient funds and technical capabilities and, therefore, the principle of the Mining Law that the first applicant gets the right cannot apply to geothermal enterprises.

Since geothermal development aims at rationalized progress and the increase of public welfare, it cannot be placed under the Mining Law, which does not question the implementation capabilities of developers. On the other hand, there is another possibility: that of granting a geother-

mal enterprise a special license as a public enterprise. That is, a specified enterprise of national importance is licensed as a public enterprise and the right of management is reserved by the government. In specified actual cases, part of the right of management is transferred to the enterprise to make it responsible for management. Such enterprises include Japan National Railways, the Japan Development Bank, and local public enterprises. Besides, there are companies of a public-and-private mixed form which include International Telecommunication and Telephone Co., Ltd. and Electric Power Development Co., Ltd.; among licensed companies, there are gas and power companies which are perfectly private companies. A licensed enterprise performs part of the public administration, and both the government and the enterprise stand in a special power relationship shaped by the government's assistances, restrictions, and supervisions; it is also possible for the right of management to be withheld by the government. Geothermal developers should carefully study this type of enterprise.

As stated earlier, the protection of geothermal developments through amendment of the current laws was studied from various perspectives. That is, whichever one of the following we should choose: partial amendment of a law, solution through improvement of administrative measures, or acquisition of the geothermal right through the enactment of an independent law, will involve many problems. But seeking for a solution in the Hot Spring Law or the Mining Law seems to be difficult in theory and practice, inasmuch as the objects of such laws are essentially different from those of geothermal development. Accordingly, it becomes necessary to establish an independent law specifically defining the geothermal right under deep understanding of both government and citizens, using as references the legislation of geothermally advanced countries which are positively promoting geothermal development as an enterprise of national importance. The law should be a base for positive promotion of geothermal development.

The character the new law of geothermal right should have is suggested in the ensuing sections of this paper.

## BASIC DEVELOPMENT LAW STUDY

Based on the above conclusions, the Mining Companies Council has prepared a plan and studied it from various aspects. As an interim plan, the main points of the basic law have been summarized, but the overall final summarization will be made after further studies. A draft of the proposed basic law on geothermal development is as follows:

1. Object: The object of this law is to establish a system for developing and utilizing geothermal resource rationally and thereby secure domestic energy and promote the development of a local area.

2. Definitions of relevant terms. (a) *Geothermal Resource*: The geothermal resource is such a resource as gas and steam erupting from underground, or geothermal energy (for power generation: see below) deposited underground. (b) *Development*: The development consists of concentrating and collecting a large volume (10 000 000 cal/hr or more) of geothermal energy for generating power. (c) *Geothermal Right*: The geothermal right is a right to prospect and develop geothermal resources in specified registered areas (hereinafter referred to as a geothermal areas) inside a geothermal resource development zone. The right is a general term



for the right of trial drilling (prospecting right) and a development right, and, as a real right, is subject to the regulations on real property. The right of trial drilling (prospecting right) lasts for two years from the date of legislation, and its extension is limited to two times.

3. Unless under the geothermal right, the development of the resource or prospecting inside the geothermal area for the purpose of geothermal development is not allowed. The government has authority to grant a right to excavate and acquire a geothermal resource which is not excavated yet.

4. The government designates geothermal resource development zones (through the Minister of International Trade and Industry).

5. The boundary of the geothermal area is drawn with straight lines, and its limit is the ground right under the boundary on the land surface. The size is 100 km<sup>2</sup> for the right of trial digging (prospecting right) and 10 km<sup>2</sup> for the development right.

6. The holder of the geothermal right must have a plan for prospecting and developing geothermal resources in a rational way and must have the technical ability to implement it.

7. The application for the right of trial drilling (prospecting right) is filed to the government on a fixed day once a year. In this case, a document stating the operation plan must be attached to the application.

8. The same applies to the development right.

9. The development right can be applied for only by the holder of the right of trial drilling (holder of the prospecting right).

10. When the geothermal right has been applied for, the government must consult with the prefectures and executive agencies concerned.

11. After the geothermal right has been applied for, when the government has determined that the application meets the specified conditions and has completed necessary consultations, the government approves and registers the establishment of the geothermal right. The geothermal right becomes effective from the date of registration.

12. The owner of the geothermal right or a person wishing to establish a geothermal right may, under the permission of the Director of the International Trade and Industry Bureau, enter the land belonging to a third person and may cut bamboos and trees. When it is necessary to use or expropriate land, he may apply to the Director for authorization.

13. The country furnishes the geothermal-right holder with part of the expenses necessary for his enterprise, or advances necessary funds and also allows special treatment in taxation.

14. The geothermal right can be an object of mortgage or security (development right).

15. The government must conduct a basic investigation of geothermal resources in the entire country every year.

16. Partial amendment of the Hot Spring Law. (a) When the geothermal right holder has applied for hot-spring drilling to the prefectural governor, the governor must grant permission if there is no fear that the drilling affects the volume of the erupting hot spring, temperature, or ingredients; and if the application meets the conditions set forth in the Geothermal Law. (b) The provisions of the Hot Spring Law do not apply to trial drilling (prospecting) and the development of geothermal resource to which the Geothermal Law is applied.

The above are the contents of the draft of the basic law for geothermal development, but the characters of the existing laws and surrounding situation being such as stated earlier, presenting the basic law at this time might invite fundamental discussions on the geothermal right. This could result in the delay of geothermal developments, and, therefore, the following bill in the form of a promotion law, within the framework of the existing laws, is being prepared for submission to the Diet as a resolution by House members of the Liberal Democratic Party.

## PROMOTION LAW DRAFT

The first draft of the main principle of the proposed promotion law was published on March 8, 1974, and the second draft on April 4, 1974. The mining industry has agreed to the draft in principle. The gist of the draft is as follows:

1. The government is to promote smooth and efficient development of geothermal resources.
2. A basic investigation of geothermal resources is to be implemented by the government.
3. The government decides on a basic plan of geothermal development, and designates zones, and so on.
4. Geothermal developers may engage in developments under the approval of the government.
5. The administrative organs of the government give due consideration to the smooth development of geothermal resources.
6. The government assists geothermal developers in obtaining necessary funds or loans.
7. The geothermal developer who does not abide by this law is subject to appropriate penalties.
8. Geothermal developers already engaged in development are regarded as the developer under this law once they have reported their operations to the government.

## IMMEDIATE-RIGHT RELATIONSHIPS

Supposing the promotion law summarized above passes the Diet, the geothermal zones will be designated and the developers inside those zones will be recognized by the government and they will receive cooperation and assistance from the local public organs or administrative agencies related to geothermal development. Thus, it is recognized that the development of geothermal resources is legally accorded a significant right-like framework, whereby the development is expected to advance effectively a step further. However, even though a legal framework is given by the country, it is after all "right-like" and not the right itself. Consequently, reconciliation with the existing laws needs to be continued in the process of implementing the promotion law. There may be a case where the restrictions for protecting scenic beauty provided in the Natural Park Law conflict with the designation of geothermal zones. Also, ownership or leasehold is still necessary in applying for a digging or drilling under the Hot Spring Law, even though it is for geothermal development; also, if the developer fails to lease necessary land, there is no way to save it, since the land-use or expropriations authorized in foreign legislation (or authorized under the Mining Law in our country) will not be applicable. Even though local public authorities stipulate regulations for assistance, it is feared

that land negotiation will not become easier than before.

In addition, in case a geothermal developer has drilled for and acquired geothermal fruits such as steam or hot water, there is no basic law by which he can own and utilize them as a right endorsed by the nation, as in the case of underground minerals which can be exempted from landownership rights and owned by the developer according to the Mining Law. Therefore, the developer must still acquire the landownership as the base of a right to own and utilize his fruits. But there is a limiting factor in the need to acquire a vast tract of land from the beginning of development, and also, as the land where geothermal resources are latent is mostly national lands, it is normal to lease the land. In cases where purchase of local public or private lands was not successful, the only way left is

land lease. Consequently, the current situation is that the developer is obliged to obtain leasehold from the landowners (country, public organs or private persons). In view of this, the developer has no other recourse but to seek ownership of his geothermal fruits in leasehold, but ownership based on leasehold is unstable in view of the nature of leasehold. Since there are more problems to be solved, and it conceivably will take much more time before a basic law centering on the geothermal right can be introduced, it is considered necessary for geothermal developers to direct their efforts toward early introduction of the promotion law, which is ahead of the current legal system in regard to legal consciousness of the coming rights relationship as stated in this paper.