**SAI's role in promoting national sustainable development**

Board of Audit of Japan

**1. Introduction**

This country paper is prepared by the Board of Audit of Japan (hereafter “the Board”) for “SAI’s role in promoting national sustainable development”, one of the themes of the 6th Seminar on Environmental Auditing to be held in India in October 2016, according to the guidance sent from CNAO prior to the Seminar.

This paper reviews the activities relating to sustainable development goals (SDGs) in Japan and the outline of related audits by the Board. Then, this paper will explain the details of audit case example and consider the SAI’s role in promoting national sustainable development.

**2. Background Information**

(1) Activities relating to the SDGs in Japan

The SDGs adopted in the 2015 UN Summit are common global goals that are shared by all countries. Accordingly, for the purpose of taking the initiative in the implementation of the SDGs, Japan’s Cabinet established the “Sustainable Development Goals Promotion Headquarters” on May 20, 2016, which makes it possible to facilitate close collaboration among relevant administrative agencies and to drive forward such measures in a reciprocal and effective manner, in the implementation of Japan’s measures related to the SDGs. The first meeting held on the same day came to a decision to recapitulate Japan’s approaches in and outside the country in a cross-ministerial manner, identify priority issues, and on the basis thereof, formulate “SDGs Implementation Guidelines,” therewith aiming to proactively embark on the SDGs in terms of both domestic implementation and international cooperation.

　In the future, the Implementation Guidelines will be formed through interviews with ministries, agencies and stakeholders, and thereafter, each of the ministries and agencies will drive forward its own approaches. Further, their implementation status will be followed up, and the Implementation Guidelines will be reviewed, on a regular basis.

(2) The Board’s past audit cases pertaining to Japan’s sustainable development

The Board’s audits include many cases related to national sustainable development.

With respect to audit cases in the environmental field, for example, the Board reported the audit cases of promotion of utilization of recycled crushed stone (explained in the later section), and audit case that expressed opinion on measures for controlling CO2 emissions by setting a proper target amount for emissions control, etc. for efficient and effective implementation of subsidized project. In terms of international cooperation, the Board’s reports include audit case that expressed opinion on the implementation of a grant aid project concerning environment/climate change control for the accurate and prompt implementation of the projects by thoroughly managing the progress of the project.

Even in fields of expertise other than the environmental field, some of the Board’s past cases relate to the SDGs, for example, an audit case of the implementation of ODA projects.

Some examples of the Board’s audit cases to date categorized according to the 17 SDGs are as shown in the Appendix. As such, the audits by the Board cover most of the areas in SDGs which are wide-ranging.

**3. Audit Cases: demanded measures for improvement of the road reconstruction projects with environmentally-conscious as well as economical design by promoting the use of recycled crushed stone, etc.**

(1) Outline of audit cases and the relevant SDGs

　In Japan, the Act on the Promotion of Effective Utilization of Resources (Recycle Act) was enacted in 1991 for the purpose of ensuring the effective utilization of recyclable resources as well as contributing to waste reduction and environmental preservation. Hence, the Board conducted audits on the use of recycled crushed stone, which is commercialized by crushing concrete and asphalt-concrete that are generated from the demolition work of buildings, the resurfacing work of paved roads, etc., and then removing impurities from the resultant crushed stone, in road improvement work, etc. As a result, the use rate of recycled crushed stone was found to be remarkably low despite the fact that recycled crushed stone was available for use and inexpensive compared with virgin crushed stone produced by crushing raw stone. For this reason, the Board has been reported the necessity of efforts to promote the use of the recycled stone.

The first audit case reported was the demanded improvement measures to the Ministry of Construction in 1996, and thereafter the Board demanded improvement measures to Japan Railway Construction Public Corporation in 2001, to the Ministry of Land, Infrastructure, Transport and Tourism (“MLIT”) in 2006[[1]](#footnote-1) and 2008, and to the Ministry of Agriculture, Forestry and Fisheries (“MAFF”) in 2012 with regard to the use of recycled crushed stone for forest roads, and in 2013 with regard to the Board’s demand from the same Ministry for the use of recycled crushed stone as a bedding material for pipelines to transport water for agricultural use. Therefore, the Board has repeatedly presented opinions and demanded measures more than 15 years, while having widened the scope of projects to which the point concerned applies. These audit findings contributed, to some extent, to the effective utilization of environmentally-conscious resources and the designing of economical public works, and accordingly are relevant to Goal 12 of the SDGs, “Ensure sustainable consumption and production patterns.” Among the audit cases, the overview of the audit case in 1996 and subsequent 3 audit cases after 2000 is provided below.

　(2) Outline of the audit case in 1996

・Use of recycled crushed stone for road reconstruction projects, etc. (Ministry of Construction)

Around 1996, when the audit was conducted, the full-scale production of recycled crushed stone started at recycling facilities. Its price was lower than that of virgin crushed stone since the costs of obtaining raw stone required for virgin crushed stone were not incurred for recycled crushed stone. On this basis, the Board conducted an audit to examine whether recycled crushed stone was properly used and estimates were economical, in line with the purposes of the Recycle Act and relevant circular notice, etc.

In relation to nationally subsidized projects that were arranged by the Ministry of Construction for local governments implementing road maintenance projects for general national roads and local roads (hereinafter, “Operating Body”), the audit was conducted on 2,807 cases of road improvement/paving work implemented in FY 1995 or FY 1996 by a total of 318 Operating Bodies in 11 prefectures (including municipalities within these prefectures) (with a total construction cost of approximately JPY 163,627.39 million [approximately USD 1,363.56 million], and national subsidies of approximately JPY 84,149.31 million [approximately USD 701.24 million]). In the aforementioned work, a large amount of crushed stone was used as a subbase course material for carriageway areas and sidewalk areas, and as a bedding material, etc., for road structures, and the design quantity amounted to 1,519,000 m3 in total (the estimated material cost was approximately JPY 4,306.62 million in total [approximately USD 35.88 million]; and national subsidies were approximately JPY 2,198.78 million [approximately USD 18.32 million]).

The results of an inspection of the use of recycled crushed stone in the aforementioned work were as follows:

In the 2,807 cases of road improvement/paving work in the foregoing 11 prefectures, recycling facilities were located within 40 km from each of the work sites, and thus the work concerned were being carried out in the areas where it was possible to use recycle crushed stone. Nonetheless, some Operating Bodies limited the scope of projects and work types for which they would use recycled crushed stone, or did not disseminate its use, or the instructions they provided with regard to the use were insufficient. Consequently, the use rate of recycled crushed stone in the work concerned was considerably low.

The production volume of recycled crushed stone increased from 48 million tons in FY 1993 to 72 million tons in FY 1995. Similarly, the number of recycling facilities installed to process recycled crushed stone rose from 637 to 1,186. In addition, most of the recycled crushed stone produced at recycling facilities conformed to applicable quality standards, and was usable in subbase course work, etc., in the same manner as virgin crushed stone.

Furthermore, in road improvement work and road paving work carried out for general national roads by the Ministry of Construction as the Operating Body, recycled crushed stone had been used as a subbase course material, etc., and no particular problem had arisen in such work.

Therefore, for work that satisfied the conditions for the use of recycled crushed stone under the aforementioned circular notice, etc., it was found necessary to ensure that recycled crushed stone, which was available at a lower price than that of virgin crushed stone, was to be used in principle, and necessary to strive to make economical estimates and beneficial use of materials.

In response to the findings of the Board, the 11 prefectures and the Ministry of Construction took the following measures in order to promote the use of recycled crushed stone.

a) The 11 prefectures decided to disseminate, and provide guidance on, the active use of recycled crushed stone to the municipalities under the jurisdiction of the prefectures by revising their guidelines for the use of such stone within the period from April to December 1997.

b) In November 1997, in an attempt to once again thoroughly disseminate the utilization of recycled crushed stone, the Ministry of Construction notified prefectures, etc., to make efforts to encourage each Operating Body implementing public construction work to actively use the stone.

(3) Audit cases from FY 2001 to FY 2013

a) Use of recycled crushed stone for construction roads in construction work for *Shinkansen* bullet trains, etc. (Japan Railway Construction Public Corporation in 2001)

As a result of the audit by the Board, among the construction work that the Corporation contracted for during FY 2001, 21 cases of construction work in which recycled crushed stone was used as a base course material, etc., for construction roads, the estimates in 20 cases (with a total construction cost of approximately 55,430.40 million yen [approximately USD 461.92 million]; and a crushed stone volume of 73,400 m3) were made by using a unit price of virgin crushed stone because no detail of recycled crush stone was included in commercially available estimation references at the stage of the preliminary survey. However, in the municipalities where the construction sites of these 20 cases were located, there was at least one recycling facility, meaning that a supply system of recycled crush stone was available for use. Besides, with respect to its unit price according to each prefecture’s survey, the average unit price in the municipalities where the 20 cases of construction work took place was 11 to 34% lower than that of virgin crushed stone.

For this reason, it was found necessary to ensure that recycled crushed stone was to be used in principle when estimating the cost of crushed stone to be used as a material for the base course, etc., of roads.

b) Use of recycled crushed stone for road improvement work, etc. (MLIT, in 2008)

According to the Board’s audit, virgin crushed stone was used as a subbase course material, etc., in nine cases of construction work that MLIT handled as projects under its direct control and implemented as one Operating Body, and in 288 cases of construction work that 19 Operating Bodies implemented as subsidized projects, since these Operating Bodies were concerned about the supply and quality of recycled crush stone. However, in all the construction sites of these cases, it was possible to receive a supply of recycled crushed stone. In addition, quality standards equivalent to those for virgin crushed stone had been set for recycled crushed stone, and the use of the latter had not caused any structural problem. On this basis, it was necessary to materialize environmentally-conscious and economical designing by utilizing recycled crushed stone. Besides, despite the fact that the active use of it had been requested, for example, by the “Recycle As-a-Matter-of-Course Rule” set forth by MLIT in 2006, Operating Bodies did not sufficiently consider using recycled crushed stone. Not being appropriate, this situation required some improvements.

c) Implementation of construction work to open forest roads, etc. (MAFF, in 2012)

As a result of the Board’s audit of 2,091 cases of construction work for gravel forest roads, etc., implemented in 17 prefectures from 2010 to 2012, among the total of 1,061 cases in 13 prefectures, recycled crushed stone was actively used in 905 cases. The design criteria, etc., for FY 2012 used in these cases specified the use of recycled crushed stone in upper-base course work for gravel forest roads, etc. On the other hand, in 439 cases of construction work implemented by 75 Operating Bodies, recycled crushed stone was not used for such reasons as the following: no stock available at recycling facilities; no recycling facility available nearby; and the design criteria, etc. of the prefecture not specifying the use of the stone despite the fact that the price of the stone was lower than, or at the same level as, that of virgin crushed stone.

Through issuing basic policies and administrative circulars, MAFF encouraged even more active use of recycled crushed stone, etc., in construction work for the opening of forest roads, etc.

As shown above, although the active use of recycled crushed stone was demanded, virgin crushed stone was used in upper-base course work without sufficiently considering the use of recycled crushed stone, rendering the design not environmentally-conscious or economical. The Board concluded that this situation was not appropriate, requiring improvements.

**4. Experience and Challenges**

One of the characteristics of the aforementioned audit cases regarding the use of recycled crushed stone is that similar findings were repeatedly reported for over 15 years since the first finding in FY 1996 until that in FY 2013.

Around 1996, when the Board first reported the audit case, the production volume of recycled crushed stone had been increasing, and it was actually used by some. However, the growth of its use was slow.

The Board started its audits focusing on the reuse of construction waste for the purpose of embarking on environmental problems from the aspect of audit. However, there was not sufficient information released pertaining to construction waste. Hence, the Board requested Operating Bodies to reply to the questionnaire, on the basis of which the Board inquired of Operating Bodies, constructors and the technicians, etc., at recycling facilities about whether they used recycled crushed stone, the quality of such stone, and, for recycling facilities, their waste carry-in volume and timing, product stock status and operation rate. In addition, the Board interviewed them about their reasons for not using recycled crushed stone.

Further, the Board looked into the following data of recycling facilities in the subject prefectures on a monthly and fiscal year basis: the quality of recycled crushed stone, the volume of waste received, the production quantity, the sales quantity, the amount of stock, the available quantity for supply, and the operation rate. These data were utilized for the analysis of trends in waste acceptance and sale.

As shown, in this case, the Board came to report the audit finding as a result of its audit on whether it was actually possible to use recycled crushed stone, from a wide range of aspects including the quality, distribution quantity, price, etc., of such stone.

Subsequently, since the Construction Material Recycling Act (Construction Recycle Act) was enacted in 2000 for the purpose of recycling and reusing concrete and asphalt-concrete, which are otherwise disposed of after construction work, and construction-derived wood waste, the number of recycled crushed stone production facilities and the production volume of the stone further rose, and the scope of use of such stone for public works widened as well. However, since the use of recycled crushed stone was not sufficient in some regions and for construction work, the Board pointed out that the scope of use of not only recycled crushed stone but also reconditioned sand should be extended from their use as a subbase course material in road improvement projects for general roads, to their use as a base course material for construction roads and an upper-base course material for gravel forest roads, etc.

With regard to the use status of recycled crushed stone on the basis of “Survey on the State of Construction Byproducts,” which is a statistical survey conducted by MLIT, the use rate of recycled crushed stone, among other types of crushed stone used on sites and produced by crushing asphalt-concrete and concrete, has increased as shown in the table below. The government’s approaches to recycling construction waste have steadily expanded, and the Board’s audits focusing on the effective utilization of environmentally-conscious resources and on economical designing can be considered to contribute to such expansion to a certain extent.

(Unit: %)

|  |  |  |  |
| --- | --- | --- | --- |
|  | FY2005 Survey | FY2008 Survey | FY2012 Survey |
| Use rate of recycled crushed stones | 25% | 29% | 32% |

**5. SAI’s role in promoting the national sustainable development**

The projects referred to in relation to the aforementioned audit cases were public projects such as road improvement projects, and such projects are not necessarily and directly intended to implement the national sustainable development. However, the audits on projects with attention to the recycling of construction waste have led to audit results that can contribute to the national sustainable development.

Such audits that pay attention to the promotion of the national sustainable development can be conducted on not only projects for the national sustainable development, but also a variety of other programs and projects. Each country’s approach to its sustainable development may differ from other countries depending on its circumstances. The Board believes that it can play its role to support the government’s policies and the accomplishment of the SDGs by focusing on policies and plans relating to the sustainable development of its own country, and performing audits with the objective of effectiveness; for example, the Board conducts an audit to examine whether the designing of an individual project properly reflects such policies or plans, or whether an individual project is properly implemented.

The Board has conducted audits with the objectives of economy, efficiency, effectiveness, etc., over a period of time. When finding any inappropriate circumstance, or any obstacle to the accomplishment of a goal, the Board analyzes the cause, etc., resulting in such status/obstacle, expresses its opinion, and demands measures, in ensuring that the relevant policy or project is implemented in a more economical, efficient and effective manner. In the future, the Japanese Government is expected to formulate policies for the accomplishment of the SDGs, and accordingly relevant ministries and agencies are expected to implement projects associated with the SDGs. On the basis of such policies of the government and its progress status of SDGs-related projects, the Board will conduct audits to make sure that the government’s measures and projects can be more economical, efficient and effective.

1. “In the implementation of pipeline laying work under a nationally subsidized project, improvements were made to reduce the burden on the environment, and to ensure economical designing and estimation, by promoting the use of reconditioned sand.” [↑](#footnote-ref-1)