

Environmental and Social Data Sheet

Overview

Project Name:	RAI DIGITAL TERRESTRIAL INFRASTRUCTURE
Project Number:	20090655
Country:	Italy
Project Description:	The project concerns the installation of a digital terrestrial TV (DTT) transmission platform in Italy that will completely replace the broadcasting of analogue TV signals. It will be based on around 2 000 TV broadcasting sites throughout the country and it will also include transmission and platform control systems.
EIA required:	NO
Project included in Carbon Footprint Exercise ¹ :	NO (Details are provided in section below: EIB Carbon Footprint Exercise)

Summary of Environmental and Social Assessment, including key issues and overall conclusion and recommendation

The project is considered environmentally and socially acceptable for the Bank's financing taking into account its minor negative residual impacts.

The project activity does not fall under Annexes I or II of the EIA Directive 97/11/EC and therefore does not require an environmental impact assessment. The project main impact will be the electromagnetic field radiations intrinsically associated with radio and TV broadcasting, followed by the visual impact of towers and masts many of which already existing but that will be reinforced or have new antennas installed. The RAI group follows the industry best practices and, in line with its group policy and Ethical Code, it respects the EU, Italian and regional law and regulations. The installation or expansion of sites is conditioned to permits issued by the relevant authorities, in some cases requiring environmental impact studies and negotiations about alternative options.

Environmental and Social Assessment

A. Environmental Assessment

A.1. RAI's group environmental objectives and practices

RAI's group primary environmental objectives are: a. identify and manage the environmental aspects of its activity, in order to respect legislation and achieve a continuous improvement; b. anticipate, control and reduce if possible the impacts; c. assure the constant respect of legislation for Electro Magnetic Field (EMF) radiation through the use of the best technology available at sustainable costs and the use of a national environmental control network; d. optimise the use of natural resources.

Rai Way monitors environmental aspects related to: electromagnetic emissions, acoustic noise (e.g. from heating/cooling systems and back-up generators), landscape impact, energy consumption, management of special waste, ozone depleting substances, dangerous products, liquid wastes and water consumption.

¹ Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: above 100,000 tons CO₂e/year absolute (gross) or 20,000 tons CO₂e/year relative (net) – both increases and savings.

Since the 70s the RAI group has been investing in test and measurement equipment and in the consolidation of its expertise, updating best practices and training its staff. It has been active in related national and international workgroups and committees and relevant events e.g. in order to anticipate and influence developments of the EMF regulation. Its environmental knowledge has been put at service of other parties under consultancy contracts.

Rai Way uses around 2 300 sites for its activity comprising broadcasting and auxiliary (of which about 1 500 on sites owned by itself, and the rest roughly split between public authorities and privately owned). For the sites it does not own, Rai Way requests to the site owners a contractual obligation of keeping the site operation in line with legislation, e.g. in the cases the sites are also rented to other entities with electromagnetic emissions such as other TV networks. Rai Way controls the sites it does not own with a periodicity of about 6 months. Rai Way will be broadcasting TV after 2012 from a total of around 2 000 sites.

It should be noted that changes out of Rai Way control, such as new buildings or new radio sources close to the sites, may force Rai Way to intervene and to reconfigure its equipments in order to maintain the compliance with EMF limits. Rai Way experience and equipment are important to find the best solutions to respect EMF limits. The criteria for such interventions are (ranked from first priority to last): to reduce the side lobes of the vertical diagram of the antenna or to rise the electrical centre of the main lobe, to reduce the transmitted power, to move the equipment on the most critical cases. Provisional measures are sometimes taken in preparation of the definitive ones, cases which are assessed in communication with the other local stakeholders.

A.2. Applicable regulation

The Italian framework law (n. 36 of 22.2.2001) and decrees (DPCM 8.7.2003) set the reference levels (for non-ionizing radiation) that apply to the power supply, mobile telecom and the TV broadcasting activities. They imply a higher level of protection than the reference levels of the EU recommendation that is based on the ICNIRP values i.e. the most restrictive value applicable in Italy for the radio and TV band is 6 V/m limit for electric field strength (and 0.016 A/m for magnetic field strength) defined for a duration of exposure above 4 hours. The comparable EU reference levels are 43.5 V/m and 0.12 A/m, at 1 GHz.

Rai Way is also committed in the assessment of the compliance with the limits established for the employees by the law 81/2008 (application of the European Directive, currently the 35/2013/EU). Rai Way has also to respect the "Habitats" Directive 92/43/EEC and Natura 2000 areas since some TV towers or pylons have traditionally been installed in high and isolated places. In other cases the towers are installed in urban areas close to populations and EMF is the main concern. The installations may also have impacts on historic and cultural assets, all of which must be taken into account for the award of installation and operation permits.

A.3. Design and authorization

The Italian legislation defines the roles of the State and the Regions for new site approval procedures that are related to the power of the transmitters: the procedures are generally simplified for low power (declaration to the communes, can be automatically approved within 90 days) and are stricter for high power transmitters (presentation of an environmental impact study to the regions and communes).

In the preliminary design of the network, Rai Way uses its own software tools to simulate electromagnetic radiation patterns (for the near and far EMF fields) adjusting the design to both environmental impact limits and quality of service.

In the main design phase, Rai Way following its internal protocols and certified E.M.S. and in co-ordination with the authorities (e.g. with the Ministry of Communications), identifies the possible sites where the installations will have the lowest impact. In recent years the rationalization of the Medium Wave radio installations has improved the impact to landscape of overall Rai Way broadcasting installations.

Specifically for the high power sites (new sites or existing with additional frequencies) external consultants prepare models (taking into account the physical landscape of the site and existing emission sources) to simulate the radiations of the proposed configuration. Eventually, if/when the simulations comply with the limits the consultants produce a declaration of conformity that is appended to the documentation requesting the permit to the authorities.

A.4. Assessment of impacts and mitigation

The project will be geographically dispersed throughout urban and rural areas of Italy. By the characteristics of the broadcasting services, the towers and pylons, where the antennas are installed, are high size structures (with vertical heights between 20 m and 150 m) and the TV service improves if they are placed on the top of hills/mounts which may increase e.g. their visual impact. Rai Way for the DTT network gives priority to the installation of the new equipment on its own and existing sites. The transmitters are installed inside existing technical buildings and have no additional impact, the visual impact of new antennas hung on existing towers is minimal and the EMF impact is controlled.

To reduce the electrical field at the ground level where it is relevant, in a few cases, the Italian TV broadcasters need to discuss solutions with the authorities such as the increase in height of towers, the reduction of the transmitted power or the adjustment of the radiation patterns (via antenna design). In their decisions, the authorities have also to take also into account the technical specifications of TV signals, the respect of the license conditions and the public interest of the service that is provided. The few cases where the project location or technical characteristics have to be discussed with authorities because of environmental impacts should not affect significantly the project implementation proposed by Rai Way.

The project also involves the installation of backbone equipment and information systems inside buildings, which will have almost no residual environmental impacts (e.g. the dishes for microwave transmission antennas typically use the TV mast).

EMF radiation has been classified by WHO/International Agency for Research on Cancer (IARC) in 2011 as "possibly carcinogenic to humans" or the *2B classification*. Although mainly associated with the use of wireless phones, this classification is expected to raise public attention to all kind of ICT signals. In the Rai Way towers network, the EMF that can be measured around the transmitting sites, due to the TV signals, is well below the European and the stricter Italian limits (6 V/m). The main reason is that the TV antennas are usually placed on top of tall masts and the radiation, and besides depending on the transmitted power and the antenna pattern (the shape of the beam), the electric field level is very dependent on the distance from the point of measurement to the source (i.e. on the height at which the antenna is positioned on the tower/mast). Rai Way has performed several measurements before and after analogue switch-off in several sites (i.a. near major cities such as Milan, Turin, Rome, etc). The measurements are usually performed outside nearby homes as well as on roof gardens or balconies. The measured values were generally below 0.6 V/m for single source (i.e. 10 times below the total limit of 6 V/m) with a few cases of values near 1 V/m (for single source). Inside the homes the measured values were lower.

A.5. Procedures during implementation and operation

The network implementation is performed or supervised by Rai Way as well as the monitoring of EMF radiation in the operations phase, using sophisticated software tools and measurement instruments with specialized personnel.

Taking into account the ICT sector overall, in the long run, as a part of the freed TV spectrum may be reallocated e.g. to mobile services, after the EMF bottom following the TV analogue switch off (ASO) there may be a gradual increase of overall electromagnetic radiation from other usage of the spectrum.

The compliance by Rai Way on each site with the EMF limits defined by official regulations has not been difficult. In fact, the main source of EMF is the analogue radio broadcasts (AM and FM) not the digital TV.

B. EIB Carbon Footprint Exercise

The project is not included in the exercise because the EIB draft Carbon Footprint Methodologies only include emissions from Investment Loans above the methodology thresholds of 100 k tons CO₂e/year absolute (gross) or 20 k tons CO₂e/year relative (net) – both increases and savings. The absolute project GHG emissions are estimated at less than 43 k tons CO₂e/year and the relative at near zero k tons CO₂e/year.

C. Other Environmental and Social Aspects

RAI environmental policy

Rai Way and the RAI group considers environment a strategic factor for its development and in its research and operations takes into account the sustainable development factor including the security and health of its employees and of the population. RAI defined an Environmental Policy and applied an Environmental Management System since 2006 and received its ISO 14001 certification in 2008.

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