Delibera n. 63/2022
25 Febbraio 2022

Oggetto: Accordo di ricerca Istituto Nazionale di Geofisica e Vulcanologia e Institut de Radioprotection et de Surete Nucleaire (IRSN)

IL CONSIGLIO DI AMMINISTRAZIONE

VISTO il Decreto legislativo 29 settembre 1999, n. 381, concernente la costituzione dell'Istituto Nazionale di Geofisica e Vulcanologia (INGV);
VISTO il Decreto Leg.vo 25/11/2016, n. 218, concernente "Semplificazione delle attività degli Enti Pubblici di Ricerca ai sensi dell'art. 13 della Legge 7/08/2015, n. 124";
VISTO lo Statuto dell'INGV, approvato con Delibera del Consiglio di Amministrazione n. 114/2020 del 19 giugno 2020, emanato con Decreto del Presidente n. 78/2020 del 27/10/2020, pubblicato sul Sito WEB istituzionale – Avviso di emanazione di cui al Comunicato su Gazzetta Ufficiale della Repubblica Italiana - Serie generale - n. 264 del 24 ottobre 2020, in particolare, l'art. 8, comma 6, lettera f), il quale prevede che il CdA "*omissis….delibera la partecipazione a società, fondazione e consorzi, nonché la stipulazione di accordi con organismi nazionali, europei e internazionali*";
VISTO il Regolamento di Organizzazione e Funzionamento dell'INGV, emanato con Decreto del Presidente n. 36/2020 del 22/04/2020, pubblicato sul Sito WEB istituzionale e in particolare, l'art. 29 il quale disciplina le *Collaborazioni con soggetti esterni*, stabilendo al primo comma che: "*I rapporti di collaborazione nell'attività di ricerca tra l'Ente e soggetti pubblici e privati, italiani e stranieri sono regolati attraverso contratti aventi come riferimento di massima la seguente tipologia: protocolli d'intesa, accordi di programma quadro, convenzioni operative*";
VISTO il Regolamento del Personale, emanato con Decreto del Presidente n. 12/2021 del 25/02/2021, pubblicato sul Sito WEB istituzionale;
VISTO il Regolamento di Amministrazione, Contabilità e Finanza, adottato con Delibera del Consiglio di Amministrazione n. 145/2020 del 22 luglio 2020, ed emanato con Decreto del Presidente n. 75/2020 del 21 ottobre 2020;
VISTO il Decreto del Ministro dell'Università e Ricerca n. 229 del 19/2/2021, con il quale il Prof. Carlo Doglioni è stato nominato Presidente dell'INGV;
VISTO il Decreto del Ministro dell'Università e Ricerca n. 1200 del 30/12/2019, con il quale la Prof.ssa Francesca Bozzano e il Prof. Roberto Scarpa sono stati nominati Consiglieri di Amministrazione dell'INGV;
VISTO il Decreto del Ministro dell'Università e Ricerca n. 986 del 24/10/2019, con il quale il Dott. Fabio Florindo e il Dott. Gilberto Saccorotti sono stati nominati Consiglieri di Amministrazione dell'INGV;

VISTO l'accordo di cooperazione precedentemente stipulato per favorire la ricerca comune nel campo della sismologia e della geologia sismica (rif. INGV prot. 0007219 16/05/2019);
VISTO lo schema dell'Accordo di ricerca Istituto Nazionale di Geofisica e Vulcanologia e Institut de Radioprotection et de Surete Nucleaire (IRSN);
CONSIDERATO che tale cooperazione internazionale riguarderà attività inerenti lo svolgimento da parte di INGV di una ricerca su fonti storiche relativa alla sismicità storica del Mugello e agli effetti sismici su edifici relativi a tale area, come contributo nell'ambito del progetto ACROSS (ArChaeology, inventory of RecOnstruction, Seismology and Structural engineering), il cui obiettivo è la dimostrazione che la caratterizzazione archeologica delle riparazioni post-sismiche sugli edifici può essere utilizzata con successo per dedurre il movimento del suolo e le caratteristiche principali della sorgente sismica dei terremoti storici;
CONSIDERATO che la predetta collaborazione ha anche l'obiettivo di disseminare le informazioni a livello nazionale e internazionale e la pubblicazione congiunta di articoli e documentazione per il progresso scientifico;
CONSIDERATO che l'attività da espletare rientra tra i compiti scientifici e istituzionali dell'INGV;
VISTO il parere favorevole del Direttore di Sezione e del Direttore di Dipartimento;
su proposta del Presidente,

DELIBERA

L'approvazione dello schema dell'Accordo di ricerca Istituto Nazionale di Geofisica e Vulcanologia e Institut de Radioprotection et de Surete Nucleaire (IRSN), allegato alla presente quale parte integrante e sostanziale (all.1).

Viene dato mandato al Presidente dell'INGV alla sottoscrizione definitiva dell'atto in questione.

Firmato il 22/03/2022
Depositato presso la Segreteria del Consiglio in data 22/03/2022

La segretaria verbalizzante
(Dott.ssa Maria Valeria INTINI)

MARIA VALERIA
INTINI
ISTITUTO
NAZIONALE DI
GEOFISICA E
VULCANOLOGIA
RESPONSABILE

IL PRESIDENTE
(Prof. Carlo DOGLIONI)

Carlo Doglioni
ISTITUTO
NAZIONALE DI
GEOFISICA E
VULCANOLOGIA
Presidente

RESEARCH IMPLEMENTING AGREEMENT ON THE SUBJECT OF
"DEFINITION OF A STRATEGY TO CHARACTERIZE HISTORICAL GROUND MOTION BASED ON ARCHAEOLOGY, INVENTORY OF RECONSTRUCTION, SEISMOLOGY AND STRUCTURAL ENGINEERING"
IN THE FRAMEWORK OF THE EXISTING COOPERATION AGREEMENT

BETWEEN

INSTITUT DE RADIOPROTECTION ET DE SURETE NUCLEAIRE (INSTITUTE FOR RADIATION PROTECTION AND NUCLEAR SAFETY), a French public body with industrial and commercial activities regulated by articles L592-45 to L592-49 and R592-39 to R592-61 of the French Environmental Code, registered at the RCS (Companies Register of Nanterre-France) under number 440 546 018, having its registered office at 31 avenue de la Division Leclerc, 92260, Fontenay-aux-Roses, France, and represented by Mr Jean Christophe NIEL, Director General,

REPRESENTED BY Mr. Jean-Christophe Niel, Director General of IRSN

HEREAFTER REFERRED TO AS "IRSN",

ON THE ONE HAND, AND

ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA, public establishment, whose registered office is at Via di Vigna Murata 605, 00143 Roma, Italy and identified with CF n. 06838821004

REPRESENTED BY Prof. Carlo Doglioni, President of INGV

HEREAFTER REFERRED TO AS "INGV"

ON THE OTHER HAND

HEREAFTER REFERRED TO INDIVIDUALLY AS "THE PARTY" AND COLLECTIVELY AS "THE PARTIES"

Framework:

- In 2018 IRSN and INGV signed a Cooperation Agreement (INGV prot. 0007219 16/05/2019, IRSN/DAFCJ/JS:LS 20643) to favor common research in the the field of seismology and earthquake geology (hereafter "Cooperation Agreement");
- Common actions operating in the framework of the existing Cooperation Agreement have been carried out during the last years, such as within the Fault2SHA working group, in the development of the SURE Database of earthquake surface ruptures, and in the organization of international meetings on PSHA.
- WHEREAS the Cooperation Agreement stipulates in Article 2.2.2 that implementation of Action except those contemplated in article 2.2.1 (i.e other than action stipulated in 2.1 a) and b) of the Cooperation Agreement) shall be subject to a an Implementing Agreement, written in English, signed and agreed upon the Parties.
- INGV and IRSN have been discussing to cooperate to implement an action according to article 2.2.2 of the Cooperation Agreement: "Development of probabilistic seismic hazard methodologies" (hereafter "the Action") and wish to submit to the provisions of the Cooperation Agreement the present Implementing Agreement.
- In the framework of the Cooperation Agreement, a further joint planned action by INGV and IRSN is the scientific project here described which will be carried out by both IRSN and INGV researchers.
- Scientific motivations are detailed in appendix 1 of this agreement.
- For anything not specifically mentioned in this agreement, the provisions of the ongoing Cooperation Agreement (INGV prot. 0007219 16/05/2019, IRSN/DAFCJ/JS:LS 20643) are applicable.

Article 1. PURPOSE

The purpose of this agreement, which is hereafter referred to as "the Agreement", is to define the terms and conditions whereby IRSN and INGV will cooperate in the framework of the ongoing Cooperation Agreement in the field of Seismology and earthquake geology for the implementation of the following Action: “Definition of a strategy to characterize historical ground motion based on ArChaeology, inventory of RecOnstruction, Seismology and Structural engineering”.
The scientific and technical content of the present agreement is set out in the Appendix 1.

Article 2. PERFORMANCE OF THE ACTION

2.1 Scientific Committee

The Parties shall establish a Scientific Committee with the authority to manage the scientific and technical cooperation pertaining to the Action between the Parties.

The Scientific Committee shall convene meetings at the beginning of the Action and every three months. When necessary, additional meetings will be organized as the Parties may agree.

The Scientific Committee shall be comprised of one (1) Technical Correspondent of each Party contributing to the Action.

Each Party’s representatives may be assisted by additional technical/scientific advisor when necessary. If advisors are not Parties’ Staff, advisors shall be committed by all confidentiality requirements of this Agreement. Parties requiring participation of external advisors commits themselves to make sign non-disclosure agreements to each external advisor they mandate to participate to the Scientific Committee.

The Scientific Committee shall take decision on the orientation of the Action and validation of Results by unanimous vote only. Advisors shall have no voting right.

The Scientific Committee shall only decide on topics related to the Action.

Any decision implying modification of the Agreement shall be definitively agreed by signature of an addendum to this Agreement by authorized representatives of the Parties.

Minutes of each meeting shall be drafted alternatively by each Party and are deemed to be validated one month after being sent by the drafting Party to the other Party if no modifications are required.

The Parties appoint the following Technical Correspondents:

For IRSN: Maria LANCIERI, head of BERSSIN

Bât. FAHRENHEIT pièce 722

92262, Fontenay aux roses Cedex

France

Email : maria.lancieri@irsn.fr

Phone : +33 1 58 35 81 46

For INGV: Cecilia CIUCCARELLI, Researcher

INGV, Sezione di Bologna (INGV, Branch of Bologna)

Via Donato Creti, 12
40128 Bologna

ITALIA

Email :cecilia.ciuccarelli@ingv.it

Phone : +39 (0)51 4151437

Each Party may change its Technical Correspondent during the Action by giving prior written notice to the other Parties.

2.2 Place of performance of the Action

The Action will be carried out by each Party in its own premises:

- For IRSN the premises of Fontenay-aux-Roses;
- For INGV the premises of Rome.

If any staff of the Parties was to be hosted by the other Party, article 8 (STAFF) of the Cooperation Agreement would apply.

2.3 Material obligations of the Parties under the Action

The Parties undertake to make their best efforts in performing the work of the Action within the limits of the expected duration and resources made available in the framework of the present Agreement with

no material obligation pertaining to the achievement of a specific result taking into account the experimental and research nature of the works performed under the present Agreement.

However, each Party undertakes to transmit to the other Party the deliverables within the time limits provided in Appendix 1.

Article 3. FINANCIAL CONDITIONS

Appendix 2 (Financial Appendix) details allocation of charges between the Parties or costs of the Action for each Party.

Due to the action carried out by INGV, IRSN will pay, as support for the costs of the cooperation set up under the present Implementing Agreement, a contribution of 20,000€ (twenty thousand euro) **inclusive of taxes**.

- 50% of the contribution will be paid when the Agreement is signed, and
- 50% paid at first trimester 2023 once the activity report due at T0+12 months mentioned in the paragraph 2 of the Appendix 1 has been validated by IRSN.

All payment will be done within the following procedures
The transfer will be made by IRSN, by bank transfer to the following current account:
INGV IBAN
IBAN: IT 72 G 03069 05020 100000046126
Beneficiary: Istituto Nazionale di Geofisica e Vulcanologia
Banking institution: Intesa San Paolo S.p.A - Filiale HUB

For the IRSN, invoices shall bear the references CA 32004311and LS 2021-0124 and shall be submitted online, on https://chorus-pro.gouv.fr/cpp/utilisateur?execution=e1s1&lang=en_US (hereinafter CPP). Before submitting any invoice, INGV shall register on CPP. Once registered, INGV will be able to submit any invoice by identifying the IRSN with the following SIRET number: 440 546 018 00027 and with the engagement number, which is the CA reference as mentioned above.
Any invoice submitted by other means, will not be processed and no payment will be done.
Applicable VAT if any, shall be the VAT rate applicable at the time of the invoice.

Article 4. CONFIDENTIALITY

Article 5 of the Cooperation Agreement shall apply mutatis mutandis to information exchanged in the course of the Action.

Article 5. INTELLECTUAL PROPERTY AND ACCESS RIGHTS

Article 6 of the Cooperation Agreement shall apply mutatis mutandis to the Action under this Agreement.

A list of Prior Knowledge used in the course of the Action is provided in Appendix 3.

Article 6. DISSEMINATION ACTIVITIES

Article 7 of the Cooperation Agreement shall apply mutatis mutandis to the Action under this Agreement.

Article 7. DURATION

8.1 This Agreement shall be effective the 1 January 2022 subject to its signature by the Parties and shall be in effect until the April 2025. Any tacit renewal is strictly excluded. It can be renewed by written submission of a new agreement signed by the Parties.

8.2 The Agreement may be terminated by common mutual written agreement

8.3 In the event of a breach or of total or partial breach by one of the Parties of one its obligations laid down in Articles 1 (PURPOSE) to 9 (EXPORT CONTROL) and 14 (LIABILITY- DISPUTES RESOLUTION- FORCE MAJEURE) and 15 (MISCELLANEOUS) of this Agreement, the Party which invokes a violation or a breach of the other party may give it notice to comply with its obligations within a (2) two-month period following the date of receipt of the notice sent by mail with acknowledgment of receipt. The notice must specify the obligations for which the Party must comply with under penalty of automatic termination of this Agreement against the defaulting Party. After this deadline, if the Party has not complied with its obligations, the termination of the Agreement will be automatic on the day following the end of the abovementioned period.

Article 8. EXPORT CONTROL

Article 13.6 of the Cooperation Agreement shall apply mutatis mutandis to export of any information exchanged in the frame of the activities pertaining to the Action.

Article 9. PROTECTION OF PERSONAL DATA

In the event of personal data processing, within the framework of this agreement, the Parties undertake to fulfil their obligations in accordance with applicable regulations and, especially, the regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 applicable since 25 May 2018.

Article 10. MODIFICATION

Any modification or waiver of any of the provisions of this Agreement may only take effect after it has been agreed in writing, by an amendment duly signed by the Parties.

Article 11. ENTIRETY

The provisions of the Agreement express the entire Agreement concluded between the Parties. They shall prevail over any proposal, exchange of letters prior to its signature, as well as any provisions appearing in the documents, which are exchanged between the Parties concerning the subject of the Agreement.

Article 12. INDIVISIBILITY

Should any of the provisions of this Agreement be void, it will not affect the other provisions. The Partners undertake to negotiate in good faith the modification of the affected provisions in order to obtain a result as close as possible to these provisions.

Article 13. LIABILITY **-** DISPUTES RESOLUTION – FORCE MAJEURE

Article 9 to 11 of the Cooperation Agreement shall apply mutatis mutandis to the Action under this Agreement.

Article 14. MISCELLANEOUS

Article 13 of the Cooperation Agreement shall apply mutatis mutandis to the Action under this Agreement.

Signed in two original copies in English, on _____. Therefore the English version shall prevail over any translation.

For the IRSN	For INGV
The Director General of IRSN	The President of INGV
Mr. Jean-Christophe Niel	Prof. Carlo Doglioni

APPENDIX 1: TECHNICAL/SCIENTIFIC APPENDIX

Subject title:

ACROSS Definition of a strategy to characterize historical ground motion based on ArChaeology, inventory of RecOnstruction, Seismology and Structural engineering.

Context:

Historical earthquake catalogues are one of the building blocks for the assessment of seismic hazard. The instrumental seismicity barely covers 50 decades, for this reason, the investigation and the characterization of historical earthquakes is of capital importance. The latter are known thanks to the documents describing the earthquake occurrence and its impact on the population and infrastructures. In spite of many years of research in the archives, many earthquakes remain poorly known. New sources of information are hence required. Among these, historical buildings are witnesses of natural catastrophes recorded in their walls as structural disorders, repairs, restorations.

For this reason, the IRSN is one of pioneers of the research in the fields of historical seismicity and archaeoseismology (démarche de recherche du groupe thématique risques naturels PSE-ENC 2018-00064), the ACROSS projet is ascribed in the continuity of these research.

The project goal is to demonstrate that archaeological characterization of post-seismic repairs on buildings can be successfully used to infer key ground motion and earthquake source characteristics of historical earthquakes.

To gain such a knowledge on past ground motions, it is necessary to define an interdisciplinary strategy based on: innovative techniques to inventory repairs introduced in the building archaeology; realistic seismic input signals consistent with the seismotectonic context; digital building models implementing realistic geometry and construction materials as well as robust modelling of masonry behaviour.

Because of the ambition and the complexity of the methodology the selected test site is the Mugello Area (Tuscany,Italy). This region boasts homogeneity of historical archives over seven centuries (1200-1900). Its valuable cultural heritage is characterized by medieval buildings, that have been restored and preserved through the centuries; nowadays they are the object of petrographic and mechanical analyses aimed at their characterization and preservation. Geologically, Mugello is an in tramontane basin bordered by two large antithetic normal fault systems (“Ronta” and “Sieve”) characterized a moderate seismicity rate.

The object of the agreement between IRSN and INGV is the study of historical sources

Subject:

The first step of ACROSS methodology is: collecting the data produced by the archaeology of the buildings and the study of historical sources. The archaeological analysis is devoted to: identify and locate buildings repairs and damages; characterize the repairs; establish chronological relationships among the different repairs and between each repair and the various types of building techniques. Repairs result both from destruction induced by natural and/or anthropic catastrophes or building expansion/reconfiguration. An in-depth study of historical records can deliver information on the occurrence of these circumstances, their impact on the building and on the associated restorations, providing exact chronological markers.

The historical research today follows a rigorous and transparent method for analysing/interpreting the sources; the political, social, and economic context, and the population resiliency, are studied as well. Indeed, the historical contingencies influence the rehabilitation and the reconstruction after the earthquakes, determine the lapse of time between the event occurrence and the associated reconstruction, impact the quality of the repairs material, and the building retrofitting strategies

The research path will scrutinize the documentation preserved in the national and local archives, i.e. the archives of the Principato Mediceo and the Genio Civile archive located in the State Archives of Florence; the photographic and historical archive of the Soprintendenza Archeologica, Belle Arti e Paesaggio of Florence metropolitan area; the Archivio Storico of the municipality of Borgo San Lorenzo that preserves the documents on the administration of the territory from 1531 onwards, covering the four localities where the bell towers are located. The Medici's charters of convent of Bosco ai Frati, former protectorate of the family, will be consulted. The results of these consultations will be integrated with information coming from other typology of sources (published testimonies, iconographic sources, local chronicles, press sources, etc.).

Technical reports will be produced in order to share information on the ongoing research with the consortium: one technical report in the course of the project and a final technical report at the end of the project, in September 2024. In addition, one activity report will be delivered at the first trimester of 2023.

Scientific relevance:

The Arnaud Montabert PhD thesis testify the feasibility of the study; this work conducted on Sant'Agata del Mugello, a medieval church located in the Mugello basin in central Apennines (Italy), is at the origin of ACROSS project. This church was stricken by several earthquakes, among them the 1542 and 1919 major (magnitude > 6) earthquakes. Results obtained within the framework of the ongoing PhD thesis suggest that the archaeological and historical elements can successfully be used to define a 3D digital model of the Sant'Agata church including both its geometry and material timeline.

In deep discussion of the scientific relevance of the project are delivered in the proposal.

Human and material resources needed:

20 kE archives research and digital data acquisition of historical documents and videos in support to task 1.1 of ACROSS.

Funding from the ANR to the IRSN for subcontracting because the Italian Partner cannot benefit from the ANR funding.

Respective contributions:

The INGV shares the knowledge of the Tuscany region archives and of historical seismicity of the area both necessary to conduct the study; for this reason, the INGV is a scientific partner of the project.

The IRSN shares the knowledge in archaeoseismology, historical seismicity and earthquake engineering (relation between ground shaking and damage); the IRSN is the PI of ACROSS project.

Deliverable	**Expected date**
Start T0	Date of signature by the last Party
Technical report contributing to summarizing the state of advancement of the first year of ACROSS project	T0+6 months
Activity report summarizing the state of advancement of the project IRSN-INGV	T0+12 months
Final technical report	September 2024

APPENDIX 2: FINANCIAL APPENDIX

Details of costs for each partner	Year 2022 (k€)	Year 2023 (k€)	Year 2024 (k€)	Year 2025 (k€)	Total (k€)
IRSN					
1. Permanent staff	17 ,135	17 ,135	17 ,135	17 ,135	68,540
2. Non-permanent staff including PhD student/ postdoctoral/ intern remuneration	*0*	*0*	*0*	*0*	*0*
3. Cost related to the installation		*0*	*0*		0
4. Operating costs	*0*	*0*	*0*	*0*	0
5. Investment	*0*	*0*	*0*	*0*	0
6. Mission expenses	*0*	*0*	*0*	*0*	0
Total IRSN	17 ,135	17 ,135	17 ,135	17,135	68,541
INGV					
1. Permanent staff	13,518	13,518	13,518	13,518	54,072
2. Non-permanent staff including PhD student/ postdoctoral/ intern remuneration	*0*	*0*	*0*	*0*	0
3. Cost related to the installation	*0*	*0*	*0*	*0*	0
4. Operating costs	10	10	*0*	*0*	20
5. Investment	*0*	*0*	*0*	*0*	0
6. Mission expenses	*0*	*0*	*0*	*0*	0
INGV 1	23,518	23,518	13,518	13,518	*74,072*
Global cost of the study	*0*	*0*	*0*	0	142,613
Financial flow from IRSN to INGV	*10*	*10*	*0*		20
Global contribution of each partner					
IRSN	*0*	*0*	*0*		**88,541 (62%)**
Partner 1	*0*	*0*	*0*		**54,072 (38%)**