

COMPANY DATA	
Company name	MASSA Spin-off S.r.l.
Location	Head Office: Largo Guido Novello 1/C – 50126 Firenze Italy Scientific Department: c/o C.N.R. Research Area Via G. Moruzzi 1 – 56124 Pisa Italy Operative Department: Via Don Mazzolari 25 – 56025 Pontedera (PI)
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Sector	Environment

BACKGROUND
<p>MASSA Spin off - Scientific Methodologies and Applications for the Monitoring of Risk – was founded in 2007 as a spin-off of the University of Florence and of the National Research Council (CNR), the largest public research institution in Italy (the only one under the Research Ministry performing multidisciplinary activities).</p> <p>It operates as a private company and as a Research Unit in the field of gas/oil recovery, pollution and gas emissions in atmosphere, ground water deriving from waste disposal and industrial sites, biogas exploitation for renewable energy production, monitoring and control of emissions from methane storage areas and carbon sequestration processes.</p> <p>It operates in Italy and abroad to solve environmental risks, offering its expertise developed over more than twenty years of experience in the CNR and in the University of Florence.</p> <p>The head office is based in Florence while scientific and technical departments are located in Pisa and Pontedera. Technological instruments and laboratories, inside the CNR research area in Pisa, allow the determination of geochemical-isotopic composition from many elements in solid, liquid and sodas matrixes in order to identify the origin of the analyzed elements.</p> <p>MASSA Spin-off's main competitive advantage is undoubtedly its mixed competencies, high profile, integrated scientific expertises developed through research in collaboration with university institutions and industrial partners. Moreover, due to its laboratories, databases, scientific resources along with consolidated managing competences, MASSA Spin-off offers a wide range of innovative services, contributing to create a strong image in the private and public sector.</p>

OWNERSHIP AND FINANCIALS	
Share capital	80.000,00 € (Euros)
Current Investors	<ul style="list-style-type: none">- Prof. Piero Manetti – University Professor (16%)- Dr. Giovanni Baldi – Manager (16%)- Dr. Brunella Raco – CNR Researcher (15%)- CNR – National Research Council (10%)- University of Florence (10%)- West Systems S.r.l. (10%)- P&I S.r.l. (10%)- Ellea Life & Tecnology S.r.l. (10%)- Dr. Massimo Guidi – CNR Researcher (3%)

MISSION AND BUSINESS	
Mission	<p>MASSA Spin-off operates in the national and international market for the reduction of environmental risk.</p> <p>The company's business is focused on the solution of problems originating from high impact activities, namely gas emissions in the atmosphere and water sub-soil pollution.</p> <p>MASSA Spin-off aims to strengthen a continuous process of improvement and innovation in the environmental market.</p>
Business lines	<p>MASSA Spin-off offers specialized market services of environmental risk monitoring in the following sectors:</p> <ul style="list-style-type: none"> • Landfills; • Industrial processes and areas; • Urban and natural areas; • Gas storage sites; • Agricultural products.
Targets	<ul style="list-style-type: none"> • Public institutions and authorities of the environmental sector; • Oil and gas companies; • High impact industrial processes and plants; • Public and private organizations in the field of waste management, such as landfills and incinerating plants; • Organizations operating in food safety and certification.




MARKET	
Positioning and competition	<p>MASSA Spin-off has a primary and unique market position due to its origins, characteristics and competencies, facing a not yet direct and structured market competition.</p> <p>The potential competitors include university research organizations, environmental service and consulting companies, technical and scientific laboratories.</p> <p>Yet, the so far identified competitors have a narrow local market orientation, offering a limited range of services and limited interpretation capabilities. Organizations developing a wider range of expertise usually do not focus on the same core business.</p>
Competitive advantages	<p>Competitive advantages include the following:</p> <ul style="list-style-type: none"> • scientific methods and technological instruments innovativeness; • management expertise; • laboratories, databases and other scientific resources; • wide range of services and research capabilities; • image and credibility.
Internationalization	<p>MASSA Spin-off has established some important relationships in an international perspective.</p> <p>It has conducted important projects in the field of gas emissions and storage (CO₂, CH₄) committed by the Italian ENI Group, International Leader in Oil & Gas industry, being able to apply its advanced research and monitoring services to international Oil contractors. MASSA Spin-off is also operating in the air radioactivity monitoring with NATO (North Atlantic Treaty Organization) in its military basis.</p> <p>Nevertheless, MASSA Spin-off has set foot in South America, building strategic relationships with public institutions, Universities and Research Centres.</p>
Market opportunities	<p>Environmental monitoring constitutes a growing, highly innovative industry. The most important market opportunities are as following:</p> <ul style="list-style-type: none"> • the increase of waste production; • the pressing technological evolution; • the evolving normative trends, compelling industrial operators to survey and monitor increasing risk factors; • the growing issues of environmental risks, especially concerning greenhouse gases; • the increasing sanitary emergency induced by the impact evaluation of the nano-particles and the very fine dust in general; • the increasing attention to CO₂ storage in order to reduce the greenhouse gases problem (Carbon Sequestration); • the pressing issues to increase natural gas reserves of highly industrialized countries.



TOP MANAGEMENT	
Chairman	<p>Prof. Piero Manetti Multi-annual experience in University of Florence and CNR (National Research Council), as a geological science professor and director in charge of institutes, departments, scientific commissions, scientific projects at a national and international level.</p>
Chief Executive Officer (CEO)	<p>Dr. Giovanni Baldi Professional experience as chairman, manager, senior strategic consultant and partner in services, consulting and high technology industrial companies. University Degree in Economics, skills in strategic designing and planning, project management, marketing, business process analysis and reengineering.</p>
Chief Technical Officer (CTO)	<p>Dr. Brunella Raco MASSA Spin-off CTO, coordinating and addressing research projects and scientific/technical services execution. Researcher in CNR National Research Council, specialized in gas and water analysis, geochemical analysis, isotopic analysis, studies and analysis in the volcanic field. University Degree in Geology and PhD in isotopic geochemical sciences.</p>
Business Development	<p>Mr. Lorenzo Bosi Professional and entrepreneurial experience, he is founder, partner and Director of Mediatel Group, operating in Information & Communication Technology. Marketing and commercial skills. Relationship with public and private organizations, such as government bodies and authorities, public and private consortium, local institutions, national and international business groups.</p>

SCIENTIFIC AND INDUSTRIAL FOUNDER PARTNERS	
CNR – National Research Council	The Italian National Research Council (CNR) is the largest public research institution in Italy, the only one under the Research Ministry performing multidisciplinary activities.
University of Florence	Italian Public University
West Systems S.r.l.	Conception, planning and production in the electronic and advanced technologies sectors. Know-how and expertise focused on instruments and sensors for the monitoring and control of gas emissions inside soil and intra-face soil-atmosphere. Relationships with national and international research institutes
P&I S.r.l.	Environmental engineering and consulting company, focused on water and waste treatment and disposal, land reclamation, environmental services planning and management
Ellea Life & Technology S.r.l. (Mediatel Group)	Information & Communication Technology. Innovative and diversified ICT solutions thanks to a significant expertise in the ICT sector. Strong marketing and commercial capabilities



MAIN CUSTOMERS AND PROJECTS ACCOMPLISHED	
 <p>ENI Group engineering - world leader operating fittings for hydrocarbons production and natural gas exploitation, oil and gas infrastructures and environmental activities. www.saipem.it</p>	<p>1. Laboratory tests on solid sulphur: analysis and tests for the determination of the physical and chemical sulphur parameters, to evaluate its blocks transportation feasibility.</p> <p>2. Analysis of the potential geothermal energy resources in Nigeria: geological study regarding Nigeria potentialities for the geothermal energy exploitation.</p> <p>3. Execution of a prototype for geochemical analysis: study, planning and development of the prototype and instrumental injection sampling system for advanced geochemical analysis.</p> <p>4. Sampling of natural gases from well heads: CO₂ leakage measurement for monitoring and analysis to control the integrity of wells in concession areas.</p> <p>5. Isotopic analysis on natural gases: geochemical studies to evaluate the natural gas diffusion dynamics within an aquifer storage / production, using "Fingerprinting" techniques in which applies the G-IRMS analysis.</p> <p>6. CO₂ monitoring station placement: planning, assembling, installation and testing of CO₂ emissions measuring station.</p>
 <p>The alliance between 26 countries from North America to Europe, to attain the objectives of the "North Atlantic Treaty". www.nato.int</p>	<p>1. Provision of an Environmental Pollution Assessment at the Italian MOD Firing Range of Salto Di Quirra (Sardinia) and Surrounding Area: Evaluation of the environmental pollution at the Interforze di Salto di Quirra Polygon (NU). Identification of radioactive particles spared in the air and measurement through:</p> <ul style="list-style-type: none"> • construction, installation and maintenance of two fixed and two mobile automatic monitoring stations; • training for use and maintenance; • users manual and maintenance. <p>2. Extension of monitoring activities linked to Lot 1 of Enviromental pollution assessment at the Italian MOD firing range of Salto di Quirra (Sardinia) and surrounding areas</p>
 <p>ENI Group leader company in gas storage activities using depleted gas reservoirs with the relative infrastructure - wells, treatment and compression plants. www.stogit.it</p>	<p>Planning and development of environmental - geochemical monitoring stations Engineering, executive planning, development, execution and maintenance of environmental geochemical monitoring stations for the detection of leaking gas deriving from natural gas storage in natural reservoirs.</p>



 <p>Local Government institution www.provincia.parma.it</p>	<p>Identification and evaluation of tetrachlorethylene in the area of Priorato di Fontanellato (Parma)</p> <p>Hydrogeological and hydrogeochemical study on aqueduct wells, aimed to the isotopic-geochemical characterization of intercepted water within the field wells.</p>
 <p>Local Government institution www.ferrara.comune.fe.it</p>	<p>Storage and geologic sequestration of CO₂ in Ferrara - feasibility study</p> <p>Analysis and feasibility evaluation for the capture and geologic sequestration of the CO₂ produced in the city of Ferrara. Feasibility will be verified in a field test by collecting a mixture of gas containing CO₂ from the surrounding factories, separating CO₂ from the other gasses, transporting it to the storage site and injecting it into a deep geological reservoir.</p>
 <p>Industrial Consortium of the Sassari Province - Consortium among local entities (Sassari Province and the cities of Sassari, Alghero and Porto Torres) aimed to manage the industrial sites of Porto Torres, Sassari-Truncu Reale and Alghero-San Marco and to the local economic development. www.cipsassari.it</p>	<p>Scientific Consulting at high environmental risk areas in Porto Torres</p> <p>Scientific consulting, assistance and support to the directive board of the Industrial Consortium from the Sassari Province for the project regarding the characterization and land decontamination in areas of high environmental risk in Porto Torres (Sardinia) comprehending the petrochemical pole and surrounded areas. Such activity shall contribute to the decision making process on the characterization and decontamination of industrial areas project.</p>
 <p>Organization operating to develop and optimize the logistic process of food and agricultural industry, in order to reduce costs and guarantee quality and safety of the products.</p>	<p>Chemical and isotopic analytical methodologies application to identify agro-alimentary products origins</p> <p>The activity concerns products and processes certification in agro-alimentary distribution field. It consists in the verification of the application of chemical and isotopic methodologies to identify the origin and the treatments of the agro-alimentary products and analyse the agricultural food chains in order to develop innovative certification models and systems for consumers and producers protection.</p>
 <p>International leader group in the production of "ecological" furniture panels, composed by 20 companies in Italy and abroad.</p>	<p>Air quality monitoring related to an industrial area of a multinational group: Emission source identification, characterization, analysis and effects evaluation on air quality determination (including particulates), through the application of isotopic methodologies. Activities classified as "industrial secret".</p> <p>Renewal of air quality monitoring activities.</p>
 <p>Local Government institution www.comune.figline-valdarno.fi.it</p>	<p>Municipal area evaluation</p> <p>Evaluation of possible environmental risks and impacts prior to the approval of an industrial activity construction.</p>



 <p>Leader group in services related to water cycle, energy, environmental and waste treatment services, public lighting, heating. www.gruppohera.it</p>	<p>Monitoring and characterization of biogas emissions according to the specific Italian laws (D.Lgs. n. 152/2006)</p> <p>Evaluation of the defused biogas flux from urban waste landfill located in the municipal area of Ravenna. Sampling and flux management is done using the accumulation chamber and analysis of gases from the shallow sampling holes used to quantify the general amount of biogas dispersed in the landfill area.</p>
 <p>SAO – Group ACEA S.p.A. - Specialized in urban hygiene services, treatment, recovery and disposal of municipal solid and special waste. The company manages a selection and composting plant and the Orvieto waste landfill. www.aceaspa.it</p>	<p>Environmental monitoring activities at the waste disposal plant located in Orvieto (TR)</p> <p>Evaluation of the diffused biogas flux emitted from the landfill area located in Orvieto, with the accumulation chamber method; sampling and analysis of interstitial biogas; chemical characterization of the potential smell sources, sampling and chemical analysis of landfills leachate and wastewater, chemical analysis of piezometers waters within the monitoring plan, chemical analysis of surface and confluent waters of the River Paglia; sampling and analysis of soils and river sediments.</p>
 <p>Company belonging to Publiservizi Group operating in the environmental field. www.publiambiente.it</p>	<p>Activity of chemical-isotopic monitoring of landfill waters</p> <p>Chemical and isotopic monitoring activities of the ground water located under the landfill managed by Publiambiente. Detailed hydro geochemical study that includes water sampling, chemical and isotopic analysis from groundwater level encountered at the piezometric level that is presently situated in the landfill area. The study also includes the influence of the leachate produced from the processing plant.</p>

 <p>Environmental multi-service company operating in several municipal areas of Leghorn Province for the overall waste cycle management (collection - treatment - disposal - recycling). www.asiu.it</p>	<p>1. Monitoring and characterization of the diffused biogas (according to the specific Italian law - D. Lgs. 152/2006): diffused biogas flux evaluation emitted from the Solid Urban waste landfill located in the municipality of Piombino (LI), using the accumulation chamber; biogas sampling and analysis at capture shallow sampling wells and quantification of dispersed biogas from the landfill area.</p> <p>2. Renewal of monitoring and characterization activity of the diffused biogas (according to the specific Italian law - D. Lgs. 152/2006) [referred to above]</p> <p>3. Air sampling activities: air sampling activities in the landfill area of Ischia di Crociano, Piombino municipal area(LI), on selected points based on dominant wind directions and sensitive receivers position.</p> <p>4. Renewal of monitoring and characterization activities of the diffused biogas (according to the specific Italian law - D. Lgs. 152/2006) [referred to in paragraph 2].</p> <p>5. Renewal of monitoring and characterization activities of the diffused biogas (according to the specific Italian law - D. Lgs. 152/2006) [referred to in paragraph 4].</p> <p>6. Renewal of the air quality sampling activities [referred to in paragraph 3].</p> <p>7. Risk analysis in the landfill area of Ischia di Crociano Determination of qualitative and quantitative changes, induced in the polluting sources (leachate and biogas), following to the raising of the main acceptance parameters of landfills waste, and of the related impact on sensitive receptors.</p> <p>8. Determination of environment “blank” inside the Multipurpose Platform steel and no steel waste recovery, located in Ischia di Crociano Piombino (LI) - (Authorized with AD No.23 of the Province of Livorno 08/02/2010)</p>
 <p>Company operating in the construction, maintenance and management of waste treatment plants. www.ecoforservice.it</p>	<p>1. Monitoring and characterization activity of the diffused biogas (according to the specific Italian law - D. Lgs. 152/2006): diffused biogas flux evaluation emitted from the Solid Urban waste landfill located in the Pontedera municipal area (PI), using the accumulation chamber; biogas sampling and analysis at capture shallow sampling wells and quantification of dispersed biogas from the landfill area.</p> <p>2. Renewal of the monitoring and characterization activities of the diffused biogas [referred to above] and extension to a second plant.</p> <p>3. Renewal of the monitoring and characterization of the diffused biogas in both the previous plants [referred to the previous paragraph].</p> <p>4. Renewal of the monitoring and characterization of the diffused and conveyed biogas in both old and new plants [in the previous paragraph] and extension of monitoring flows H₂S.</p>

 <p>T.E.V. S.p.A. Termo Energia Versilia - VEOLIA Group - SERVIZI AMBIENTALI TECNITALIA S.p.A. operating on waste disposal management and integrated systems in Versilia: incinerator with Energy recovery at Falascaia (Pietrasanta, LU) and selection and composting plants at Pioppogatto (Massarosa, LU). www.veoliaes.it</p>	<p>Characterization of superficial and deep waters at the waste treatment plant Pioppogatto (Massarosa, LU) managed by TEV S.p.A. from Veolia Group</p> <p>Hydro-geochemical monitoring activity aimed at the superficial and deep waters isotopic geochemistry characterization.</p>
 <p>Polistrade operates in the field of roads infrastructure and currently employs a great number of human resources and materials to the construction of residential and industrial complexes. www.polistrade.com</p>	<p>Chemical and Isotopic Monitoring of the land reclaim activities in the area of Ex Fornaci Le Piaggiole, Comune di Campi Bisenzio (FI)</p> <p>Sampling, chemical and isotopic analysis of the biogas and leachate aimed at monitoring the waste fermentation evolution followed by the land decontamination in the subjected area.</p>
 <p>International group operating in engineering, building, environmental and waste treatment. www.cmsa.it</p>	<p>Monitoring and characterization activities of the diffused biogas according to the specific Italian laws (D.Lgs. n. 152/2006)</p> <p>Evaluation of the defused biogas flux from urban waste landfill located in the municipal area of Monsummano Terme (PT). Sampling and flux management is done using the accumulation chamber and analyses of gases from the shallow sampling holes used to quantify the general amount of biogas dispersed in the landfill area.</p>
 <p>Company of Group Tea S.p.A. which manages the urban waste landfill in the Municipality of Mariana Mantovana (MN). www.teaspa.it</p>	<p>1. Monitoring and characterization activities of the diffused biogas (according to the specific Italian law D. Lgs. 152/2006): evaluation of the defused biogas flow from urban waste landfill located in the municipal area of Mariana Mantovana (MN). Sampling and analysis on biogas fluxes from the shallow sampling wells in order to quantify the general amount of biogas dispersed in the landfill area.</p> <p>2. Renewal of the monitoring and characterization activities of the diffused biogas (according to the specific Italian law D. Lgs. 152/2006) and extension to another lot of the same landfill [referred to above].</p>

<p>Azienda Servizi Val di Cecina S.p.A.</p> <p>Services company operating in the territory of Valdicecina (PI) for the management of water and waste disposal sites.</p>	<p>1. Monitoring and characterization activities of the diffused biogas (according to the specific Italian law D. Lgs. 152/2006): evaluation of the diffused biogas from urban waste landfill located in the municipal area of Montecatini Val di Cecina (PI). Sampling and analysis of biogas fluxes from the shallow sampling wells in order to quantify the general amount of biogas dispersed in the landfill area.</p> <p>2. Renewal of the monitoring and characterization activities of diffused biogas (according to the specific Italian law D. Lgs. 152/2006) [referred to above].</p> <p>3. Monitoring activities and hydrogeochemical studies of the Buriano (GR) landfill: superficial and groundwater and leachates hydro geochemical studies at the Buriano landfill area in the municipal area of Castiglione della Pescaia (GR).</p> <p>4. Renewal of the monitoring activities and hydrogeochemical studies of the Buriano (GR) landfill [referred to above].</p> <p>5. Chemical, geochemical and isotopic data interpretation collected in previous years relating to groundwater at the landfill Buriano (PI), and control and risk levels definition: chemical, geochemical and isotopic data interpretation. Interpretation of landfill groundwater data; control and risk levels definition, according to the requirements of the Province Authority of Pisa; identification of eventual abnormal values in analyzed parameters.</p> <p>6. Renewal of chemical monitoring activities in the Buriano landfill: water and leachate [referred to paragraph 4]</p>
 <p>Company focused on the construction and operation of treatment plants and waste disposal, managing the Landfill "Cassero", Serravalle Pistoia (PT). www.pistoiambiente.com</p>	<p>1. Monitoring and characterization activities of the diffused biogas (according to the specific Italian law D. Lgs. 152/2006)</p> <p>Evaluation of the diffused biogas flux from urban waste landfill located in the municipal area of Serravalle Pistoia (PT). Sampling and flux management is done by the accumulation chamber and analysis of gases from the shallow sampling wells used to quantify the general amount of biogas dispersed in the landfill area.</p> <p>2. Renewal of monitoring and characterization activities of diffused and conveyed biogas [referred to above]</p> <p>3. Consulting activities for the assessment of post-closure costs determination of "Il Cassero" landfill</p>
 <p>Partner firm of the University of Florence, focused on agricultural production, studies and testing innovations, supporting the University Faculty of Agriculture in Florence.</p>	<p>Drafting construction documents for the environmental restoration plan:</p> <p>Activities drafting construction documents for the environmental restoration plan in an area nearby Cerbaia in San Casciano Val di Pesa (FI).</p>

 <p>Environmental engineering company with expertise in the fields of polluted water treatment, treatment, recovery and waste disposal remediation, environmental impact assessment, consultancy, design and management of environmental services. www.peisrl.com</p>	<p>Plan and characterization addressed to the reclamation and security of the inactive landfills</p> <p>Plan of characterization of the inactive landfill in the municipal territory of Agliana (PT), consisting in sampling and analysis of water wells, chemical and isotopic analyses of water and gas flux measurements.</p>
<p>Laguna Azzurra S.r.l.</p> <p>Construction company operating in the environmental sector.</p>	<p>Sampling and analysis of the industrial area in Site of National Interest (Orbetello lagoon - GR)</p> <p>Sampling and isotopic analysis of the sandy and clay aquifers for respective data verification on the basis of the required parameters. The activity aims at the environmental recovery and reuse of the local contaminated areas.</p>
 <p>High quality wine production.</p>	<p>Project for the protection of origin and traceability of wine production</p> <p>Certification of traceability and origin of the "Morellino di Scansano" wine.</p>

MAIN RESEARCH PROJECTS IN PROGRESS	
 <p>Local Government institution www.regione.toscana.it</p>	<p>Zero-Emission CH₄-poor Biogas Utilization through mineral carbonation</p> <p>The project involves the feasibility assessing of a CH₄ poor (<30%) biogas energy utilization, and the reduction of CO₂ landfill emissions into the atmosphere.</p> <p>The project focuses on the implementation of a pilot plant for CO₂ capture, for biogas enrichment in CH₄, and the mineral carbonation of serpentine, resulting in zero emissions into atmosphere. Such pilot plant will be suitable of industrial processing and implementation within the several waste disposal sites operating in the region with valuable economic and environmental benefits.</p> <p>In particular, the experimental conditions of temperature, pressure and P_{CO2} necessary for the completion of the mineral carbonation reaction may also be applied to the treatment of asbestos (a fibrous variety of serpentine) for its neutralization.</p>
 <p>Local Government institution www.regione.toscana.it</p>	<p>Reactive cartridges system for effluents mine acids</p> <p>The ultimate goal of the project is to develop an innovative, compact, modular system of reactive cartridges in order to process acidic mine waters. As reported in the scientific literature and state of the art, acid mine drainage waters are characterized by low pH, high content of dissolved metals (mainly Fe) and high content of dissolved sulphate.</p> <p>The purification system that will be developed, designed, optimized and validated within this research project will allow a combined process to ensure both the removal of dissolved pollutants by direct reaction with the reactive material inside the reactive cartridges and the retention within the cartridges of reactive solids from treatment, mainly ferric oxy-hydroxides or sulfides of Fe and other metals.</p> <p>The purification system to be developed is based on a textile-based filtering (with particular interest in non-woven fabrics) suitably supported and filled with reactive material towards selected pollutants.</p>