

1. **Name :** Lucio PEZZA

2. **Date of Birth:** 1947 **Nationality:** Italian

3. **Education:**

- Master's degree in civil engineering, Hydraulic section, University of Naples, 1970;
- Post Graduate certificate in Sanitary Engineering (Water and Waste Water Treatment Plants), University of Naples, 1971.

4. **Membership of Professional Associations:**

- Professional Associations: Italian engineers association;
- Member of the High Council of Public Works, Section II (Hydraulic Works), in 2004.
- Member of "Associazione Idrotecnica Italiana

5. **Other Training:**

- Various technical specialization courses, among which:
 - Health and security on construction site course, according to the Italian law 81/2008.
- Teaching Experience:
 - Professional course on Biochemical systems, Dept. of Engineering, University of Aquila, since 2011;
 - Professional course on Design and Maintenance of sewage treatment plant, Professional Register of Chemist of Rome, 1985;
 - Professional course on Security of treatment plants organized by Consorzio Apiform (Perugia), 1984;
 - Professional course on Water treatment plant operation financed by Lazio region, 1982;
 - Professional Course on Water Treatment Plant design and maintenance for Italian engineers association.

6. **Countries of Work Experience:** Albania, Burkina Faso, Egypt, Ethiopia, Honduras, Italy, Jordan, Lebanon, Vietnam, Jerusalem and Gaza Strip, Malawi, Seychelles, Somalia.

7. **Languages:**

	<i>Speaking</i>	<i>Reading</i>	<i>Writing</i>
English	sufficient	Very Good	Very Good
Italian	Mother Tongue		

8. **Key Qualifications:**

Mr. L. Pezza has more than 50 years of overall professional experience, in Italy and international, in the field of large civil and hydraulic works, such as network for drinking water, water treatment plants (WTP), sewage and storm water drainage network. His experience ranges from design, supervision of works, and commissioning of hydraulic plants.

Since 1986, he is a consultant of Foreign Affairs Ministry of Italy working as a technical advisor for several international projects in developing countries, including in Balkans ; Jordanian Kingdom, Lebanon Republic and Egypt Republic . He worked for nearly 25 years as Team Leader for Works Supervision during the construction and implementation of water treatment plants and/or water supply projects.

As an independent consultant, he has been:

- Technical Director of hydraulic plants;
- Design Team Leader for several water treatment plant (WTP), including drinking water treatment plants annexed to dams, such as:
 - Lower Diamphwe dam WTP Flow = 2850 l/s
 - Grand Anse dam WTP Flow = 170 l/s
 - La Gogue dam WTP Flow = 51 l/s
 - Etc.
- Designer for drinking water networks, storm water drainage and waste water collection.

He has been Member of the Italian High Council of Public Works (Hydraulic Works), in 2004, which is responsible for the review and approval all the hydraulic works in Italy. His overall professional experience combines with his strong academic background, relevant training, scientific publications and teaching experience.

9. Employment Record:

From: 2013 To: date
 Employer: Studio Ing. G. Pietrangeli s.r.l.
 Positions held: Hydraulic expert, WTP Expert

From: 1986 To: date
 Employer: Italian Ministry of Foreign Affairs and other clients
 Positions held: Independent consultant for WTP

From: 1976 To: 2011
 Employer: Municipal administrations and private companies
 Positions held: Technical Director, Design team leader, Single designer, Project manager

From: 1992 To: 2006
 Employer: Municipal administrations
 Positions held: Team leader for Works Supervision

10. Detailed Tasks Assigned

Mr L. Pezza will be responsible for all aspects related to the design the water treatment plant.

11. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:

Rehabilitation of waste water collection around the lake of Bolsena and connected pumping stations
Year: 2023
Location: Italy
Client: TALETE SpA Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Nord Lazio area;
Position held: Design team leader
Activities performed: Final Design

Mola di Bari WTP municipal wastewater implementation
Year: 2022
Location: Italy
Client: AQP Acquedotto Pugliese Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Puglia area;

Position held: Design team leader

Activities performed: Final Design

New WTP for Termoli municipal waste water

Year: 2020

Location: Italy

Client: ACEA MOLISE SpA Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Molise area;

Position held: Design team leader

Activities performed: Final Design

WTP for Zagarolo municipal waste water

Year: 2019

Location: Italy

Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area;

Position held: Design team leader

Activities performed: Final Design

Grand Anse Dam and Water Treatment Plant

Year: 2018 – 2021

Location: Seychelles

Client: Studio Ing. G. Pietrangeli Srl

Main project features: Grand Anse is a dam for water supply, with a mini hydropower plant and a water treatment plant, with the following basic features:

- Dam (RCC type, H = 80 m, Reservoir V = 2.3 Mm³)
- Gated Spillway (No. 2 radial gates, Design Flood = 428 m³/s)
- Powerhouse (IP = 135 kW)
- Water Treatment Plant (Q = 14,688 m³/d)

Position held: WTP Expert

Activities performed: Feasibility Studies; Detailed Design; ESIA and RAP; Tender Documents.

WTP for Santa Marinella municipal waste water

Year: 2018

Location: Italy

Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area;

Position held: Design Team Leader

Activities performed: Final Design

WTP for Valcanneto municipal waste water

Year: 2018

Location: Italy

Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area;

Position held: Design Team Leader

Activities performed: Final Design

Drinking water network for Faleri Area of Civita Castellana town

Year: 2017

Location: Italy

Client: Civita Castellana

Position held: Team leader for Works Supervision

Activities performed: Works Supervision

WTP of the COBIS plant effluent for agricultural purposes

Year: 2017

Location: Italy

Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area;

Position held: Design Team Leader

Activities performed: Final Design

WTP for Marcellina municipal waste water

Year: 2017

Location: Italy

Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area;

Position held: Design Team Leader

Activities performed: Final Design

WTP for Ciciliano municipal waste water

Year: 2017

Location: Italy

Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area;

Position held: Design Team Leader

Activities performed: Final Design

La Gogue Dam Raising and Water Treatment Plant

Year: 2016 – 2023

Location: Seychelles

Client: Studio Ing. G. Pietrangeli Srl

Main project features: The project includes two main components, dam raising and water treatment plant, with the following basic features:

Raising and refurbishment of La Gogue Dam:

- Earthfill Dam, raised of 6 m (H = 41 m, L = 200 m);
- New spillway (Q = 119 m³/s)

Water treatment plant

- Treated water flow (Q = 4400 m³/day) ; Population served (13000 persons)

Position held: WTP Expert

Activities performed: Design review and upgrade, Tender Documents for two contracts (under Fidic Silver and Red Books), Assistance during procurement, Supervision of Construction, assistance during commissioning.

WTP for Carsoli municipal waste water

Year: 2016

Location: Italy

Client: CAM Consortium for drinking networks management in Marica Area

Position held: Design Team Leader

Activities performed: Final Design

Final design of collectors serving the new WTP for Termoli municipal waste water

Year: 2016

Location: Italy

Client: Ladispoli Municipality

Position held: Single Designer

Activities performed: Final Design

WTP for Civita Castellana municipal waste water

Year: 2016

Location: Italy

Client: Talete Sp.A. Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Nord Lazio area

Position held: Design Team Leader

Activities performed: Final Design

Implementation of drinking water network from Faleri tank

Year: 2016

Location: Italy

Client: Civita Castellana Municipality

Position held: Single Designer

Activities performed: Final Design

Implementation of drinking water network in Cenciani Area

Year: 2015

Location: Italy

Client: Civita Castellana Municipality

Position held: Single Designer

Activities performed: Final Design

Drinking water network for Cenciani Area of Civita Castellana town

Year: 2015

Location: Italy

Client: Civita Castellana Municipality

Position held: Team leader for Works Supervision

Activities performed: Works Supervision

WTP for Civita Castellana municipal waste water

Year: 2014

Location: Italy

Client: Civita Castellana Municipality

Position held: Design Team Leader

Activities performed: Final Design

LOWER DIAMPHWE Multipurpose Dam. Water Supply and Irrigation Scheme

Year: 2013 – 2016

Location: Malawi

Client: Ministry of Water Development and Irrigation, Malawi

Main project features: Lower Diamphwe dam and associated structures (water supply and irrigation scheme) including the following works:

- Lower Diamphwe Dam (RCC type, H = 33 m, L = 980)
- Spillway (Overflowing type, Q = 3800 m³/s, L_{sill} = 167 m)
- Water treatment plant (Q = 2850 l/s)
- Pipeline (L_{tot} = 114 km, D = 300 – 1400 mm)
- Irrigation Scheme (A = 1,000 Ha)

Position held: WTP expert

Activities performed: Review and upgrade of feasibility studies, Pre-Feasibility of Irrigation Scheme, Detailed Design, Tender Documents

Start Up and final check of Talbieh Waste Water Treatment Plant, founded by Italian Government

Year: 2013

Location: Jordan

Client: Italian Ministry of Foreign Affairs

Position held: Technical Advisor

Activities performed: Technical Advisor services

WTP for industrial area of Santa Lucia, Frosinone

Year: 2013

Location: Italy

Client: ASI Frosinone (Industrial development Consortium)

Position held: Design Team Leader

Activities performed: Final Design

Backwashing Treatment Plant for biological filter of Roma Sud WTP

Year: 2013

Location: Italy

Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area

Position held: Design Team Leader

Activities performed: Final Design

Sewer trunk and WTP for Civita Castellana Urban Area second batch

Year: 2012-2019

Location: Italy
Client: Civita Castellana Municipality
Position held: Team leader for Works Supervision
Activities performed: Works Supervision

Drainage, waste water collection and treatment system project in Tay Ninh town, 6000 cm/day
Year: 2012
Location: Vietnam
Client: Italian Ministry of Foreign Affairs
Position held: Technical Advisor
Activities performed: Technical Advisor services

WTP for Gorga Municipal Waste water
Year: 2011
Location: Italy
Client: ACEA ATO2 Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Central Lazio area
Position held: Design Team Leader
Activities performed: Final Design

Rebuilding of Saoufar Bridge and Koura drinking water net works
Year: 2009-2011
Location: Lebanon
Client: Italian Ministry of Foreign Affairs
Position held: Technical Advisor
Activities performed: Technical Advisor services

WTP for Civita Castellana Municipal Waste water
Year: 2008
Location: Italy
Client: Talete S.p.A. Water and Waste water management for Viterbo area
Position held: Design Team Leader
Activities performed: Final Design

WTP for Milazzo Industrial Area
Year: 2008
Location: Italy
Client: SMIA (Studio Maione Ingegneri Associati, Milano)
Position held: Design Team Leader
Activities performed: Final Design

WTP for La Maddalena Municipal Waste water
Year: 2009
Location: Italy
Client: Gariazzo Public Works S.p.A
Position held: Design Team Leader
Activities performed: Final Design

Drinking water treatment for La Maddalena Municipality
Year: 2009
Location: Italy
Client: Gariazzo Public Works S.p.A
Position held: Design Team Leader
Activities performed: Final Design

WTP for Camaiore chief town and other hamlet of Camaiore municipality
Year: 2006
Location: Italy
Client: GAIA S.p.A. Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Nord Tuscany Area
Position held: Design Team Leader

Activities performed: Final Design

Sewer trunk and WTP for Civita Castellana Urban Area first batch

Year: 2006

Location: Italy

Client: Civita Castellana Municipality

Position held: Team leader for Works Supervision

Activities performed: Works Supervision

Seravezza and Forte dei Marmi WTP

Year: 2006

Location: Italy

Client: GAIA S.p.A. Integrated Water Service Management Body: water and waste water collection, distribution and treatment for Nord Tuscany Area

Position held: Design Team Leader

Activities performed: Final Design

Implementation of drinking water network in Casal Ettore area

Year: 2005

Location: Italy

Client: Civita Castellana Municipality

Position held: Single Designer

Activities performed: Final Design

Waste Water collection of Via Milano area , situated in Ladispoli urban area

Year: 2005

Location: Italy

Client: Ladispoli Municipality

Position held: Single Designer

Activities performed: Final Design

Master Plan for waste water collection and treatment about 30 little towns of Viterbo district

Year: 2005

Location: Italy

Client: Sogesid S.p.A.

Position held: Single Designer

Activities performed: Final Design

Final check of the whole plant, about technical and contractual problems, in order to verify the performance previewed in the contract

Year: 2005

Location: Honduras

Client: Italian Ministry of Foreign Affairs

Position held: Inspector for final test of S. José WTP (Tegucigalpa)

Activities performed: Inspector for final test

Construction of storm drainage trunk line in Montesarchio town

Year: 2004 -2006

Location: Italy

Client: Montesarchio Municipality

Position held: Team leader for Works Supervision

Activities performed: Works Supervision

Final check of the whole plant, in order to verify the performance previewed in the contract

Year: 2004

Location: Egypt

Client: Italian Ministry of Foreign Affairs

Position held: Member of the Special Technical Commission for the final inspection of Gabal El Asfar WTP (Cairo)

Activities performed: Member of Technical Commission

Implementation of network for storm drainage of Montesarchio town

Year: 2004

Location: Italy

Client: Montesarchio Municipality

Position held: Single Designer

Activities performed: Final Design

Implementation of drinking water network in all the urban area of Castelfranco

Year: 2003

Location: Italy

Client: Castelfranco in Miscano Municipality

Position held: Single Designer

Activities performed: Final Design

Implementation of the Jordan Water Master Plan, with specific reference to the Program for Waste Water Treatment and Reuse for agricultural purposes, founded by Italian Government

Year: 2002-2006

Location: Jordan

Client: Italian Ministry of Foreign Affairs

Position held: Technical Advisor

Activities performed: Technical Advisor Services

Evaluation of the correct application of the bidding procedure and of the intergovernmental protocol, for the construction of Zahale WTP

Year: 2002-2004

Location: Lebanon

Client: Italian Ministry of Foreign Affairs

Position held: Technical and administrative expert for bidding procedure

Activities performed: Technical and administrative expert for bidding procedure

Preparation of the final report, to be accepted by the Italian Government and the local Counterpart, of the hospital works

Year: 2002

Location: Burkina Faso

Client: Italian Ministry of Foreign Affairs

Position held: Inspector for final check, for technical and contractual problems, for the construction of Ougadougou Hospital

Implementation of four projects proposed by Vietnamese counterpart (three about drinking water networks, and the other about hydrometry stations and storms forecast) to be approved by The General Directorate of the Italian Cooperation

Year: 2002

Location: Vietnam

Client: Italian Ministry of Foreign Affairs

Position held: Technical Advisor

Activities performed: Technical Advisor services

Implementation of waste water lift station in the area of Ladispoli town

Year: 2001-2003

Location: Italy

Client: Ladispoli Municipality

Position held: Team leader for Works Supervision

Activities performed: Works Supervision

Final inspection and arbitrate for Tirana Hospital between the Client and the constructor of three lift plants

Year: 2001

Location: Albania

Client: Italian Ministry of Foreign Affairs

Position held: Inspector for final check, about technical and contractual problems

Activities performed: Final Check

Final test for a project founded by Italian Government for desalting and distribution of drinking water in Khan Younis town.

The final report was to be approved by Palestine Water Authority, University of Al Hazar (Gaza) and the Italian Cooperation. This final report included a general overview about drinking water in Gaza strip, that was very appreciated by the General Director of Italian Cooperation.

Year: 2000

Location: Jerusalem and Gaza Strip

Client: Italian Ministry of Foreign Affairs

Position held: Inspector for final check

Activities performed: Inspector for final check

Final Report for a multipurposes project for agricultural development in Burkina Faso, including construction of dams, factory for transformation of agricultural products, and others

Year: 2000

Location: Burkina Faso

Client: Italian Ministry of Foreign Affairs

Position held: Inspector for final check, about technical and contractual problems

Activities performed: Final Check

Final inspection and arbitrate for Tirana Hospital between the Client and the constructor of three lift plants

Year: 2001

Location: Albania

Client: Italian Ministry of Foreign Affairs

Position held: Inspector for final check, about technical and contractual problems

Activities performed: Final Check

WTP for Ardea town

Year: 2000

Location: Italy

Client: Idrica S.p.A.

Position held: Design Team Leader

Activities performed: Final Design

Works for Implementation of waste water collection system in Madonna delle Piagge area, Civita Castellana urban area

Year: 1998-1999

Location: Italy

Client: Civita Castellana Municipality

Position held: Team leader for Works Supervision

Activities performed: Works Supervision

Ordinary and extraordinary maintenance and daily operating of the waste water treatment plant, Civita Castellana

Year: 2000 - 2024

Location: Italy

Client: GSA srl private plant for special liquid waste water treatment, dangerous and not dangerous, delivered by truck

Position held: Technical Advisor

Activities performed: Ordinary and extraordinary maintenance and daily operating

Ordinary and extraordinary maintenance and daily operating of the waste water treatment plant

Year: 2000

Location: Civita Castellana

Client: GSA srl private plant for special liquid waste water treatment, dangerous and not dangerous, delivered by truck;

Position held: Technical Advisor

Activities performed: ordinary and extraordinary maintenance and daily operating

Final check of project founded by Italian Government about the construction of an Electromechanical factory to the extraordinary maintenance of electric public plants
Year: 1999
Location: Ethiopia
Client: Italian Ministry of Foreign Affairs
Position held: Inspector for final check
Activities performed: Final Check

Implementation of WTP in via Morosina area
Year: 1999
Location: Italy
Client: Ciampino Municipality
Position held: Design Team Leader
Activities performed: Final Design

Implementation of WTP in Ciampino Municipality Area
Year: 1999
Location: Italy
Client: Ciampino Municipality
Position held: Design Team Leader
Activities performed: Final Design

Connection pipe between urban area and industrial area of Civita Castellana town
Year: 1997
Location: Italy
Client: Civita Castellana
Position held: Single Designer
Activities performed: Final Design

Connection pipe for drinking water, Cerveteri town
Year: 1997
Location: Italy
Client: Cerveteri Municipality
Position held: Team leader for Works Supervision
Activities performed: Works Supervision

Final test for educational project, including the construction of a wood factory and annexed school for Egyptians students
Year: 1997
Location: Egypt
Client: Italian Ministry of Foreign Affairs
Position held: Inspector for final check
Activities performed: Final Check

Connection pipe for drinking water to S. Martino school, of Cerveteri town **Year:** 1996
Location: Italy
Client: Cerveteri Municipality
Position held: Single Designer
Activities performed: Final Design

WTP for industrial area of Civita Castellana town
Year: 1995
Location: Italy
Client: Civita Castellana Municipality
Position held: Design Team Leader
Activities performed: Final Design

Network for drinking and service water of the Industrial area of Civita Castellana
Year: 1995
Location: Italy
Client: Civita Castellana Municipality
Position held: Design Team Leader

Activities performed: Final Design

Master Plan for waste water collection and treatment of Civita Castellana town

Year: 1995

Location: Italy

Client: Civita Castellana Municipality

Position held: Single Designer

Activities performed: Design

Implementation of several in progress projects founded by Italian Government; Garoe Bosaso road, Bosaso harbour, Bosaso Hospital, Mogadiscio network for drinking water, Construction of 27 wells for drinking water in north Somalia, etc.

Year: 1990

Location: Somalia

Client: Italian Ministry of Foreign Affairs

Position held: Technical Advisor

Activities performed: Technical Advisor services

WTP for Mondragone town

Year: 1988

Location: Italy

Client: SATA srl

Position held: Single Designer

Activities performed: Final Design

WTP for three villages in Latina area

Year: 1988

Location: Italy

Client: Impresa Papa Pasquale srl

Position held: Single Designer

Activities performed: Final Design

Implementation of WTP of Vejano Town

Year: 1988

Location: Italy

Client: Vejano Municipality

Position held: Single Designer

Activities performed: Final Design

Network for storm drainage and waste water collection and treatment of the Parco Azzurro urban area of Guidonia

Year: 1984

Location: Italy

Client: PCM srl

Position held: Single Designer

Activities performed: Final Design

Network for drinking and service water of the urban area of Parco Azzurro urban area

Year: 1984

Location: Italy

Client: PCM srl

Position held: Single Designer

Activities performed: Final Design

Design of Rome South WTP, for Rome Municipality

Year: 1979

Location: Italy

Client: Breda Progetti e Costruzioni srl (Efim Group)

Position held: Project manager

Activities performed: Final Design

Design of Po Sangone WTP, for Torino Municipality

Year: 1978

Location: Italy
Client: Breda Progetti e Costruzioni srl (Efim Group)
Position held: Project manager
Activities performed: Final Design

Design of Sarno Mouth WTP, at service several Municipality, included in the program for Naples Gulf sanitation

Year: 1976

Location: Italy

Client: Breda Progetti e Costruzioni srl (Efim Group)

Position held: Project manager

Activities performed: Final Design

12. Publications

- "Different momentum as main sludge/water separation cause in a secondary sedimentation tank" ISWEE 2020
- "A new approach for studying the operation of a secondary sedimentation tank" Water Practice and Technology ; IWA Publishing 2016/187
- "Sfioro dalla sedimentazione secondaria di fango non intrappolato nel cuscino di fondo", Ingegneria Ambientale (CIPA Editore), numero, settembre-ottobre 2011
- "Importanza dell'altezza nel dimensionamento dei decantatori secondari", Atti del Convegno Sidisa, Ravello, 1997
- "Studio del comportamento del cuscino di fango nei decantatori secondari", Ingegneria Ambientale, n° 2/1996
- "Riutilizzo come 1° stadio biologico, a forte carico, di vecchi impianti a letti percolatori con riempimento tradizionale", Atti del Convegno Impianti di depurazione per piccole comunità, Capri 1992

13. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

<u>Lucio Pezza</u>		<u>20/09/2024</u>
<i>Name of Expert</i>	<i>Signature</i>	<i>Date</i>

<u>Antonio Pietrangeli</u>		<u>20/09/2024</u>
<i>Name of authorized</i>	<i>Signature</i>	<i>Date</i>
<i>Representative of the Consultant</i>		
<i>(the same who signs the Proposal)</i>		