

CURRICULUM VITAE

Current position/expertise: **Director/Solid Waste Management Specialist/Civil & Geo-environmental Engineer/GIS Expert**
Name of Firm Engineering Study & Research Centre
Name: Dhundi Raj Pathak, PhD
Date of birth: 25/06/1977
Passport holder: Nepali
Email: drpathak@esarcnepal.com; draj28@yahoo.com
Phone: +977-9841298743

Key qualifications:

Mr. Pathak holds a PhD in Geo-Environmental Engineering from Japan, and earned his Bachelor's degree in Civil Engineering from the Institute of Engineering, Tribhuvan University in 2001, and a Master's degree in Geotechnical Engineering from the same institute in 2005 in distinction with first position. Dr. Pathak is a Director of the Engineering Study and Research Centre and serves as board member in Center of Research for Environment, Energy and Water (CREEW). He teaches GIS and Landfill Engineering & Solid Waste Management at Tribhuvan University, Nepal, and consults for donor agencies (ADB, GIZ, KFW, DFID, WB etc.), INGOs, and governments in both national and international projects. His work has ranged from civil and geo-environmental engineering including geotechnical investigation, GIS, solid waste, fecal sludge management and groundwater management along with climate change, integrated infrastructures planning and policy development at local, national to international levels. Dr. Pathak was appointed as technical expert member by Government of Nepal for field verification and capacity assessment of different international bidders for Integrated Solid Waste Management (ISWM) project of Kathmandu Valley in 2011 and 2014.

He served as editorial board member of Journal of Water Resources and Protection from 2009 to 2015 and is reviewer on numerous environmental engineering journals. He has an excellent research record with more than dozen peer-reviewed high-impact factor journal papers and several international presentations. His areas of expertise includes Municipal Solid Waste Management and Healthcare Waste Management, Integrated Infrastructures Planning and Policy development, Geotechnical & Geo-environmental Engineering, GIS analysis and mapping and Groundwater Management & Aquifer Protection.

Education:

Institution(Date from - Date to)	Degree(s) or Diploma(s) obtained:
Graduate School of Science and Engineering, Ehime University, Matsuyama, Ehime, Japan (March 2014)	PhD degree in Geo-environmental Engineering
Osaka Sangyo University, Daito, Osaka, Japan (March, 2010)	PhD diploma in Engineering, Graduate School of Engineering
Pulchowk Campus, Institute of Engineering (IOE), Tribhuvan University, Kathmandu, Nepal (December 2005) (Distinction with rank 1).	M.Sc. in Geotechnical Engineering,
Pulchowk Campus, IOE, Tribhuvan University, Kathmandu, Nepal, (October 2001)	BE in Civil Engineering

Language skills:

Language	Reading	Speaking	Writing
Nepali	Mother Tongue		
English	Fluent	Fluent	Fluent
Hindi	Basic	Basic	
Japanese	Basic	Basic	

Membership of professional bodies:

- Member: American Society of Civil Engineers (ASCE) (2009 -till)
- Member: National Ground Water Association (NGWA) (2008- 2010)
- Member: International Association of Hydrological Sciences (IAHS) (2007- till)
- Life Member: Nepal Engineers Association
- Life Member: Nepal Geotechnical Society
- Civil Engineering Subject Committee Member, Far-Western University, Mahendranagar, Nepal
- Board Member: Center of Research for Environment Energy and Water (CREEW), Kathmandu, Nepal
- SWM expert member: Field verification team for Integrated Solid Waste Management (ISWM) of Kathmandu valley project, Government of Nepal (February 2011, May-June 2014)
- Advisory member: First Himalayan Engineering Geological Congress (HEGC-I), 12-13 May, 2019
- Technical Program Committee member: International Conference on Water Resource Management and Engineering (ICWRME2011), China, August 2011

- Organizing Committee Member: International Symposium on Geohazards, Science and Management (Geohazards 2014), Kathmandu, Nepal, November 2014
- Organizing and Technical Committee Member: International Conference on GIS and Geoinformation zoning for disaster mitigation, Kathmandu, Nepal, November 2016.
- Organizing Committee Member: Third NEA-JC Annual Workshop on Current and Future Technologies, Kyoto, Japan, November 2009
- Founding Executive Member: Urban Sustainability Initiative Nepal (USIN)

Other trainings:

- 5 weeks online course: Municipal Solid Waste Management in Developing Countries, Sandec/Eawag, April 2016
- 5 weeks Online Course: Introduction to Household Water Treatment and Safe Storage, **École Polytechnique Fédérale de Lausanne, September 2017**
- 5 weeks online course: Planning & Design of Sanitation Systems and Technologies, **École Polytechnique Fédérale de Lausanne, September 2017**
- ICEG Short Course: Geosynthetics in Landfill and other Barrier Systems, Melbourne Convention and Exhibition Center, Melbourne, Australia, Monday 10 November 2014
- Training in Geotechnics (design of foundations using EUROCode) organized by Local Road Bridge Programme (LRBP), IOE Pulchowk Campus, Kathmandu, September 2013 – October 2013
- Training on Arc hydro model for groundwater modeling, EWRI/ASCE, Kansas City, MO, USA, May 2009.
- Training on Application of Geo Information Systems to Infrastructure and Resource Assessment, Monitoring and Development from NITI/ NSGIS/UNEP, South Asian Institute of Technology (SAIT), Manbhaban, Lalitpur, Nepal, May 2003 – June 2003.
- One week Geographic Information System (GIS) Training organized by LGP/UNDP, MLD Nepal, Hetauda, Nepal, June 2002.
- Two weeks AutoCAD Training, Continuing Education Division, Institute of Engineering, Pulchowk Campus, Lalitpur, Nepal, December 2000 – January 2001.

Present position: Director/SWM Specialist

Years within the firm: 2011

Specific international experience:

Country	Date from - Date to
Nepal	2001-till
Japan	2006-2010
Vietnam	2017-2020 (intermittent)
China	August 2020 (Expected start date)

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Date from - to	Location	Company & reference person	Position	Description
June 2020 - till	Nepal	Support to the Health Sector Programme (S2HSP), GIZ Er. Tirtha Sinha, Senior Technical Advisor Email: tirtha.sinha@giz.de	Senior Civil Engineer	Advisory support on engineering design, construction and refurbishment of Healthcare Waste treatment centre, and Water, Sanitation, Hygiene (WASH) infrastructure in 13 hub hospitals to manage patient with COVID 19.
May 2019- till (intermittent)	Qinghai Haidong	ET Group International Pty Ltd Susan Jiang Email: susan@et.com.au	International Urban-rural SWM Specialist	In ADB Loan No.: 3443-PRC - Qinghai Haidong Urban-Rural Eco Development Project, Dr Pathak provides expertise comments from viewpoint of international best management practice on solid waste collection, transfer, and detailed engineering design of waste management facilities including landfill site, assist to develop SWM strategy including 3R promotion and preparation of training and community mobilization program
November 2019 - February 2020	Kathmandu, Biratnagar, Ilam	Swisscontact Worldwide	Team Leader/Waste Management Expert	As Team Leader/Waste Management Specialist, Dr Pathak provides guidance for the feasibility of municipal waste management options and opportunities for businesses in the municipal waste management chain in selected municipalities of Nepal. He designs SWM baseline study methods, sampling techniques for two municipalities (Biratnagar MPC and Suryodaya Municipality) of Province no 1 and develops survey questionnaire, supervise the field activities (municipal waste generation and characteristics study) and analyse solid waste data.
May 2019- March 2020 (intermittent)	Kathmandu, Nepal	Kathmandu Metropolitan City Hari Kumar Shrestha, Head Environment Management Department Email: shresthaharikumarr@gmail.com	Solid Waste Management/Landfill Engineer	Field survey, impact assessment on surrounding settlements, river systems and agriculture field due to open dumping and leachate, identified and categorised risk zone map and recommended solutions for improvement of surrounding area and river, prepared dump site post closure plan and utilization of land
April 2019- December 2019 (intermittent)	Kathmandu, Nilkantha Municipality, Nepalgunj and Dhangadhi Sub-metropolitan City	Support to the Health Sector Programme (S2HSP), GIZ Er. Tirtha Sinha, Senior Technical Advisor Email: tirtha.sinha@giz.de	Solid Waste Management Specialist (intermittent)	Under Support to the Health Sector Programme (S2HSP) of GIZ, which is executed by the Ministry of Health and Population, Government of Nepal, Dr. Pathak serves as SWM Specialist and will be responsible; <ul style="list-style-type: none"> To identify current waste generation and composition pattern, future projection, existing practices and problems of solid waste management (Municipal + Healthcare waste) in Nilkantha municipality Nepalgunj and Dhangadhi Sub-metropolitan City through interaction with relevant stakeholders and field survey, To identify the appropriate approach and technology for effective and sustainable management of solid waste and faecal sludge management focusing resource recovery and 3R practices, To organize a workshop and present the alternative options for ISWM in municipality and, To develop strategy and action plan for agreed options on ISWM Identification of project selection criteria, feasibility study, conceptual design of integrated waste management facilities, cost estimation (investment and operation cost) and exploring resources for project sustainability Explore the viability of central treatment of healthcare waste and its integration with municipal system in PPP modality Preparation of SWM training documents and Landfill operation manual

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March 2017-December 2019 (Intermittent)	Hanoi, Vietnam (Field) and (Kathmandu)	Asian Management and Development Institute (Project Management, Civil Engineering and Capacity Building Support - ADB Loan Contact of reference person: Mr. Nguyen Dac Hien Email: hiennd@amdi.vn ; Phone: 043 29 39 222	International Solid Waste Management Specialist - Design and Supervision Consultant	No: 3165-VIE; Project 46293-005: Greater Mekong Subregion, "Tourism Infrastructure for Inclusive Growth Project". As International Solid Waste Management Specialist, Dr. Pathak is responsible for providing guidance to the project's civil engineers in the detailed design, bidding and construction supervision of solid waste management components (incl. solid waste transport systems and onsite landfills) of all the subprojects, with a particular focus on the Output 2 subprojects that involve significant solid waste management interventions, such as at Ba Den Mountain, HuongTich and Phu Tu, Vietnam.
May 2019-July 2019 (short-term)	Kathmandu, Nepal	Government of Nepal, Department of Urban Development and Building Construction (DUDBC), Bancharedada Sanitary Landfill Site Project Er. Manoj Nakarmi Email: nakarmimanoj@gmail.com	Solid Waste Management Specialist/Landfill Engineer	Review the detailed engineering design of the 47 meter high soil reinforced dam for solid waste and sanitary landfill site and provide technical input to design consultants and client
04/2018-to date (Intermittent)	Nepal	Consortium of MEH Consultants (P) Ltd and management4health, Germany KfW financed Contact of reference person: Mr. Stefano Ferrari, Email: stefano.ferrari@m4health.pro	Project Team Leader/Senior Hospital Waste Management Advisor, HCWM project	<ul style="list-style-type: none"> Coordinate and supervise the activities of all assigned project staff as well as subcontractors and STEs in accordance with the project document agreed between KfW and the MoHP, Critically review the reports submitted by all subcontractors and STEs for quality control, Review existing national policy, strategy and guidelines related to Hospital Waste Management in Nepal and abroad Conduct field visits to observe current HCWM practices in target facilities (FW: Dadeldhura SRH and Seti ZH, in MW: Bardiya DH and Bheri ZH) and to lead discussions with respective municipal administrations to ensure maximum support from local management structures for HCWM initiatives and to understand local opportunities and limitations to be taken into account when elaborating solutions later on. Develop Hospital Waste Management Concept and lead the discussions with DoHS, STEs, project staff, partner organizations and target facilities on suitable HCWM approaches and technology choices for target facilities. Supervise HCWM assessment study in selected hospitals, analyse HCW generation and composition data and estimate the capacity of HCW treatment technology for different scenarios Prepare a list of equipment needed to implement WM concept with estimated cost and infrastructure requirements for each facility including transportation trolley, waste bins for proper separation of wastes, safety items (gloves, boots, etc.) Prepare design, specification, cost estimation and BOQ of integrated health care waste management facilities and equipment as required Ensure proper installation of waste management equipment in 3 sub-regional, hospitals various district and B3 Hospitals. Coordinate with GIZ, WHO and IMCCR for the long-term activities

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04/2018-to 12/2018 (Intermittent)	Nepal	Capacity Development of New Municipalities, GIZ Contact of reference person: Mr. Sanjeev Pokharel, Email: sanjeev.pokharel@giz.de	Solid Waste Management Specialist	<ul style="list-style-type: none"> i) Identify existing practices and problems of solid waste management in the municipality through interaction with relevant stakeholders and field survey. ii) identify the appropriate approach and technology for effective and sustainable management of solid waste based on material recovery and 3R practices iii) Conceptual design of recommended integrated waste management facilities for municipality iv) organize a workshop and present the possible options, strategy and action plan for SWM in project municipalities v) preparation of SWM planning and operation guidelines for the municipalities
05/2017-to May 2019 (Intermittent)	Nepal	Emergency School Reconstruction Projects (ESRP), JICA Loan NE- P11, OCG/MAAI/EWES Contact of reference person: Mr. Wong Kuok Hung, Email: wong@oriconsul.com	Senior Geotechnical Engineer (Intermittent)- Detailed Design and Construction Supervision Consultant	<ul style="list-style-type: none"> • To assume full responsibility of ensuring each of the schools constructed built in sound building foundation, • Preparation of ToR for various geotechnical investigation works, • Supervision of geotechnical investigation works, review of geotechnical investigation reports, • Investigate foundations conditions and critical landmass /slope stability problems, and recommend solutions wherever necessary, • To prepare and finalize detailed designs with quantities and ensure detailed designs that mitigates any foundation or slope stability or landslide problems.
11/2017-to date	Kathmandu, Nepal	Tribhuvan University-Central Department of Geology (M.Sc. in Engineering Geology) Contact of reference person: Dr. Ranjan Kr. Dahal, Phone:977-9851060464	Faculty member	Dr Pathak conducts lecture on Landfill Engineering & Solid Waste Management classes for Graduate students. He is responsible for design and supervision of landfill and solid waste management projects.
03/2017-03/2018	10 municipalities, Nepal	SWMTSC/Government of Nepal Contact of reference person: DipendraBdr. Oli, SWMTSC, Phone: 5544404/05	Independent SWM Specialist	As a SWM specialist, Dr. Pathak drafted Solid Waste Management Long Term Strategic Plan and Short Term Action Plan of 10 Municipalities of Nepal. Designed program with main focus on resource recovery, green and circular economy, self-sustainable and efficient waste management technologies. Assess environment and socio-economic situation, problems, prepare environmental management plan, mitigation measures to lower adverse impacts due to mismanagement of waste, GIS mapping of identified potential sites for waste processing and final disposal site.
03/2017-03/2018	Different municipalities of 7 Provinces, Nepal	ESRC/MULTI JV Contact of reference person: DipendraBdr. Oli, SWMTSC, Phone: 5544404/05	SWM/Geotechnical Engineer	Technical Assistance to SWMTSC Providing consulting services for Feasibility Study and Detail Engineering Design of Model Waste Processing (Management) Centre with Material Recovery Facility (MRF) at 7 Different Places of 7 States (One MRF facility in each state). As SWM/Geo-environmental Engineer, Dr. Pathak assess different sites in different municipalities for the establishment of MRF, developed several criteria for site selection, identified appropriate site in each province, assess environment and socio-economic situation and problems, prepare environmental management plan, mitigation measures to minimize adverse impacts due to mismanagement of waste, prepared conceptual design, estimate waste generation and composition, forecasting waste generation, assess geological, hydrogeological conditions of each site and GIS mapping of identified sites.
03/2017-to September 2018 (Intermittent)	Kathmandu, Nepal	Bagmati River Basin Watershed Management Project (ADB funded project)	Sanitation/Solid Waste Management Expert	In collaboration with the team leader and the training specialist carry out training needs assessment and develop training and demonstration programs for 100 households in eco-friendly toilets and solid waste management systems in the four project settlements; ii. Design and plan a program with subsidies to upscale the demonstration schemes in the four settlements to help these settlements in adopting eco-friendly household toilets, faecal sludge management and solid waste management; iii. Develop and implement training and demonstrations to promote and implement eco-friendly household toilets and waste

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				management systems.
11/2016-12/2016 (short-term)	Rasuwa, Nepal	SMEC/Sanjen Hydroelectric Project, Rasuwa Contact of reference person: Er. Kiran Kumar Shrestha, CEO; Email: kkshrestha2046@gmail.com	Geotechnical/Material Engineer	To investigate potential sites and quantify materials in each sources for filling, review technical specifications and recommend appropriate minimum technical requirements for hardfill and backfill in different components of Upper Sanjen Hydroelectric Project
06/2016-06/2017	Nepal	ESRC and Multi Disciplinary JV Contact of reference person: DipendraBdr. Oli, SWMTSC, Phone: 5544404/05	Team Leader/SWM Expert	Technical assistance to SWMTSC/Government of Nepal. As a team leader, Dr. Pathak prepared Solid Waste Management Long Term Strategic Plan and Short Term Action Plan of 15 Municipalities of Nepal. Designed program with main focus on resource recovery, green and circular economy, self-sustainable and efficient waste management technologies and prepared GIS mapping of identified potential sites for waste processing and disposal sites
04/2016-06/2016	Nepal	Solid Waste Management Technical Support Center (SWMTSC), Nepal Contact of reference person: DipendraBdr. Oli, SWMTSC, Phone: 5544404/05	Team Leader	Dr. Pathak is team leader who is responsible for designing SWM baseline study of 60 new municipalities of Nepal and deliver the final report to the SWMTSC. He develops survey questionnaire for SWM baseline study and overall supervise the field activities (municipal waste generation and characteristics study). Prior to dispatching environmental officer to conduct survey, Dr. Pathak also designs the training program, training materials and conducts the training for the trainees.
06/2016-10/2016	Nepal	RIDC (Consulting services for Ministry of Federal & Local Development)	Team Leader/Transport Expert/GIS Expert	Dr. Pathak is working as Team Leader and Transport Expert who is responsible for preparation of project banks of transport infrastructures, identify investment cost and implementation arrangements in 10 municipalities of Nepal. He reviewed municipal transport master plans, assessed financial and institutional arrangements of 72 new municipalities and prepared criteria to select 10 municipalities among 72 municipalities. Finally, he prepared ranking criteria, ranked transport linkages and identified pipeline projects, indicative cost, implementation arrangements for detail project report (DPR). He also prepared GIS maps and digital database of all 10 municipalities.
02/2015-12/2015	Far Western Region, Nepal	ADB Contact of reference person: Vivian Castro, Email: vcastro@adb.org	Independent Consultant	TA-8817 NEP: IUDP-2: Dr. Pathak was directly associated with ADB to provide technical support the Ministry of Urban Development, Nepal and 4 project municipalities of far-west region. He assessed the status of urban infrastructure components (Road & drainage, solid waste management, wastewater management, water supply, urban development facilities) and identified needs for interventions in project municipalities. He conducted GPS inventory, prepared GIS map of existing, and identified urban infrastructures. He also estimated the indicative cost of all the urban infrastructure components including regional scale projects and finalized the implementation arrangements including O&M. The total estimated project cost for all four municipalities was US\$ 115 million. He was also involved to develop adequate documentation for the approval of the Investment Project, and support MOUD in undertaking advance-contracting actions.
08/2015 to date	Kathmandu, Nepal	Deerwalk Institute of Technology (DWIT), Central Campus of CSIT, Tribhubhan University, Nepal Contact of reference person: Bijaya Kr. Shrestha, Email: bijaya.shrestha@dwit.edu.np	GIS Faculty member	Dr. Pathak conducts GIS lectures and laboratory classes for undergraduate/Graduate Information Technology students. He is responsible for design and implementation of GIS projects for various applications.
09/2015-12/2015	Ilam, Nepal	Winrock International Binod Shrestha, Contact of reference person:	Team Leader/ SWM Expert	Design of sustainable solid waste management system including compost plant, Ilam, Nepal, main responsibilities are; To review of available different composting technology which is favourable for Ilam Municipality technically

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		Director, Phone: 977-1-4467087		and climatically, and suggest the most efficient and cost effective composting technology from the list prepared Prepare detail design of the identified composting technology including explanation of process of operation and maintenance of the designed composting technology Prepare detail cost estimate, drawings and report of compost plant construction including estimation of operation and maintenance cost
03/2013-01/2016 (project based)	Nepal	RIDC (Consulting services to Rural Access Program (RAP) III Project, Department for International Development (DFID) and Department of Local Infrastructure Development and Agricultural Road (DoLIDAR), Nepal Contact of reference person: Jagat Rana Bhat, ED, Phone: 9851132180	Team Leader/GIS Expert	Dr. Pathak prepared DTMP of eight district of Nepal- Mugu, Dolpa, Taplejung, Dhading Makwanpur, Salyan, Pyuthan and Arghakhanchi districts. He reviewed previous DTMP reports of all project district, old guidelines and revised DTMP guidelines. He identified DRCN for both districts based on stakeholders' workshop and field survey. He estimated tentative cost of identified DRCN and also assessed all the available funding sources for roads. He prioritised the roads based on cost and population served and approved from DDC during stakeholder consultation meeting. He was fully responsible for GIS analysis and preparation of DIM, DTTP map, and DTMP map using GPS track and digitized various base maps.
02/2015-06/2015	Nepal (Amargadhi, Kirtipur, Bhaktapur, Kohalpur)	Engineering Study & Research Centre	Team Leader/SWM Expert	Technical Assistance to SWMTSC: Preparation of Solid Waste Management (SWM) strategic and action plan, environmental risk assessment and management plan of Bhaktapur, Kirtipur, Kohalpur and Amargadhii Municipality
05/2015-09/2015	Rampur, Palpa, Nepal	RIDC (Consulting services for Ministry of Federal & Local Development)	Team Leader/GIS Expert	Mr. Pathak worked as Team Leader and GIS Expert who was responsible for preparation of Municipal Transport Master Plan (MTMP) of Rampur Municipality including all the required GIS map and database. As per guidelines, he conducted three municipal stakeholders' consultation meeting to identify municipal road networks, to set minimum standards for urban roads, to explore existing and potential areas for agriculture, service centers etc. He also assisted for GPS survey for tracking identified municipal road networks and locates proposed interventions. He assessed possible funds available for road development, estimated tentative cost and finally prepared 5-years MTMP of Rampur Municipality.
02/2014-08/2014	Banepa, Panauti, Thimi	Engineering Study & Research Centre Contact of reference person: Dr. Sumitra Amatya Email: drsumitraamatya@gmail.com	Team Leader/SWM Expert	Technical Assistance to SWMTSC: Preparation of Solid Waste Management (SWM) strategic and action plan, environmental risk assessment and management plan of Banepa, Panauti and MadhyapurThimi Municipality, Designed program with main focus on resource recovery, green and circular economy, self-sustainable and efficient waste management technologies.
12/2014-01/2015	Rasuwa, Nepal	Sanjen Hydroelectric Company Contact of reference person: MilapBdr. Pande, General Manager, Email: sanjenhcl@gmail.com	Geotechnical Engineer	Geotechnical Study of the Access Road To Surge Tank of Sanjen Hydroelectric Project, Rasuwa , assessed slope failure and landslide zones, recommended appropriate solutions for slope protection including civil and bio-engineering infrastructures
02/2014-08/2014	Kathmandu, Nepal	ITECO Engineering, Switzerland (Consulting service for LRBP, DoLIDAR) Contact of reference person: Er. Shakil Mamandhar, D. Team Leader, Email: manandhar@lrbpnepal.org	Geotechnical Expert	Preparation of Geotechnical guidelines/Reporting format for bridge foundations and technical inputs on geotechnical works

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05/2014-06/2014	India, Germany, Finland, Sweden	Investment Board Nepal (IBN), Government of Nepal Contact of reference person:	Technical Expert member (Solid Waste Management)	Field verification and capacity assessment of bidders (in India, Germany, Finland and Sweden) for Integrated Solid Waste Management (ISWM) of Kathmandu, Nepal. <ul style="list-style-type: none"> • Review of RFP, technical and financial proposal, evaluation report and preparation of checklists, • Observe various waste processing plants and manufacturing plant in different places of India, Germany, Finland and Sweden, • Interaction with different stakeholders involved in waste management and treatment, • Prepare field verification report and submit to IBN, Government of Nepal.
05/2013-12/2013	Lalitpur, Pokhara, Byas	Engineering Study & Research Centre Contact of reference person: Dr. Sumitra Amatya Email: drsumitraamatya@gmail.com	Team Leader/SWM Expert	Technical Assistance to SWMTSC: Preparation of Solid Waste Management (SWM) strategic and action plan, environmental risk assessment and management plan of Pokhara and Lalitpur sub-metropolitan city and Byas Municipality, Designed program with main focus on resource recovery, green and circular economy, self-sustainable and efficient waste management technologies.
11/2012-12/2014	Nepal	RIDC (Consulting service to LRBP/DoLIDAR) Contact of reference person: Jagat Rana Bhat, ED, Phone: 9851132180	Geotechnical Expert	Mr. Pathak closely worked with Road and bridge design team for detailed Engineering Survey, DCP test, Design of roads, concise IEE Study and preparation of DPR of Barabise-Bhairabkunda Road (60 Km), and Balephi-JalbireTemawathan Road (55 Km) of Sindhupalchowk, Gwarko-Bhakundebesi Road (13km) and Sauraha-Badreni-Deunagar section of Greater Chitwan Ring road. In this project, he assessed the regional and site geology, slope stability on road alignment, designed and advised for DCP test, slope protection measures including bio-engineering works. He also involved in geotechnical investigation, analysis, design and preparation of geotechnical report for 7 bridge foundation in different location. He also worked for feasibility study of 6 bridges
07/2011-09/2015	Nepal	SWMTSC Contact of reference person: Dr. Sumitra Amatya, ED, Email: drsumitraamatya@gmail.com	SWM Expert	Preparation of guidelines for solid waste collection, transportation and final disposal for municipalities. Providing technical expertise (As SWM expert) in World Bank's OBA (Output Based Aid) in SWM in selected municipalities of Nepal. Review of SWM improvement plans in 15 municipalities of Nepal. Review of environmental social management plan (ESMP) and environmental social management framework (ESMF) for OBA in SWM. Review and update of technical score card for OBA in SWM in selected municipalities of Nepal. Geotechnical investigation works for bridge at Bancharedanda landfill site at KolpuKhola. Study of recycled materials from solid stream in Kathmandu valley: recovery and its economic value. Prepared final report of SWM pilot projects related to waste segregation at sources, waste reduction, reuse, recycle and composting activities. Prepared the annual program (FY 2012/13) of SWMTSC. Worked as resource person of ADB TA workshop on Capacity Assessment of Solid Waste Management Technical Support Center (SWMTSC). SWM assessment and environmental management plan of Mankamana Temple and its surrounding area. Environmental, social and economical Impact study of bin composting in Lalitpur Sub-metropolitan City. Preparation of master plan and feasibility study of Phidim landfill site, Nepal. Provided technical input for design and supervision of Sisdol landfill site (III pase), Okharpauwa, Nepal. Provided technical assistance for preparation of TOR and RFP for inviting consulting services on geotechnical investigation works and detail design of bridge in KolpuKhola. Provided technical assistance for preparation of TOR and RFP for inviting consulting services on EIA of landfill site in Baglung municipality, Nepal. Evaluation of technical proposal for EIA and bridge projects. Reviewed technical specifications, standards and procedures related with construction and maintenance works of landfill site and other waste processing facilities.
04/2010-09/2010	Nepal	RIDC Consult /Viswa P. Ltd., Kathmandu Contact of reference person: Jagat Rana Bhat, ED, Phone: 9851132180	Geotechnical Engineer	Feasibility study and preparation of detail project report (DPR) of different roads. Soil investigation works, analysis and design of foundation for following bridge, buildings and Towers. (a)) Varun Beverage (Nepal) Pvt. Ltd. at Sinamangal, Kathmandu, (b) PaudiKhola Bridge, Lamjung, (c) RishtiKhola Bridge, Lamjung, (d) MyagdiKhola Bridge, Devasthan/Darbang VDC, Myagdi, (e) KankattiKhola Bridge, Kanchanpur, (f) MaleriyaNala Bridge, Kanchanpur, (g) PattharNala Bridge, Dodhara VDC, Kanchanpur (h)

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				JogbudhaNadi Bridge, Kanchanpur, (i) SiktaKhola Bridge, Parsa (j) DhutahaNadi Bridge, Parsa, (k) GadiChhapiNadi Bridge, Parsa (l) TilabeNadi Bridge, Parsa, (m) Duhabi Substation Site at Duhabi, Sunsari (n) 132 kV Substation Site at Pathlaiya–Nijgad Sector of Mahendra Highway at Pathlaiya Bara. Monitoring and guidance for field and laboratory tests. Slope stability analysis and land slide hazard mapping.
02/2012-08/2012	Nepal	ADB, MLD/ (SWMTSC), Nepal Contact of reference person: Norio Saito, Senior Project Office, Email: nsaito@adb.org	Team Leader	Worked as Team Leader, SWM baseline study of 58 municipalities of Nepal Major responsibilities were as follows: <ul style="list-style-type: none"> • Deliver the final report of SWM baseline study acceptable to the MLD/SWMTSC and ADB, • Design questionnaire for SWM baseline study, • Design, implement and conduct the field activities (municipal waste generation and characteristics study), • Design the training program, training materials and schedule for the trainees, • Communicate with Colleges/Universities, Research Institutions to identify the surveyors, • Communicate with the municipalities in coordination with the SWMTSC.
05/2012-12/2012	Nepal	Viswa/ECOCODE Consult P. Ltd.	Geotechnical Engineer	<ul style="list-style-type: none"> • Soil investigation works, analysis and design of foundation of National Identity Management Center, Ministry of Home Affairs, Government of Nepal, Singhadarbar, Kathmandu, • Soil investigation works, analysis and design of foundation of following bridge foundation; • LohoreKhola bridge, Dailekh district, (b) SurmiNala bridge, Kailali district, (c) TadiKhola bridge, Nuwakot district, (d) Belkotkhola bridge, Nuwakot district, (e) Budhi Ganga River bridge at Achham (f) Kailash Khola bridge at Achham district • Soil investigation, testing, analysis and design of hospital building at Banepa, Kavre district, • Geotechnical investigation and geotechnical report of Mistri hydroelectric project, • Carrying out pile load test at bridge site in Surahi and Bell river and preparation of report, • Monitoring and guidance for field and laboratory tests
05/2011-01/2012	Nepal	ESRC (Consulting service for SWMTSC)	Team Leader/GIS Expert	Mr. Pathak developed digital maps and GIS database for various layers (cadastral, land use, river and road networks, geology etc) of proposed Bancharedanda landfill site area, Nepal. He conducted GPS survey for control points, geo-referenced and digitized cadastral maps of project site. In separate assignment he also developed digital maps and GIS database for various layers of existing Sisdol landfill site area, Nepal. He also prepared landfill site hazard risk zonation and prepared compensation guidelines and costs for different crops in agricultural land and households within affected areas of Sisdol landfill site.
04/2010-02/2011	Nepal, India	SWMTSC Contact of reference person: Dr. Sumitra Amatya, Email: drsumitraamatya@gmail.com	Solid Waste Management Technical Expert	Worked as technical expert member of field verification team formed by Ministry of Local Development, Government of Nepal to verify technologies, approaches, plants and documents submitted by International company selected for Integrated Solid Waste Management (ISWM) of Kathmandu, Conducted Initial Environmental Examination (IEE), Environmental Impact Assessment (EIA) of proposed landfill site and environmental management plan of municipality Review and evaluate the technical proposals (submitted by different consultants) to prepare Solid Waste Management (SWM) Strategic Plans and Action Plans in Municipalities, Prepare bidding documents including EOI, RFP and ToR to prepare SWM Strategic Plans and Action Plans in Municipalities, Provide technical guidance to solid waste management high level committee in the process of private sector involvement in solid waste management of Kathmandu Valley, including Implementation SWM Technologies Plan, Review SWM project/research reports submitted by consultants,

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				Prepare and review the reports/proceedings of many programs within UN-HABITAT TA project including Capacity Building Training to municipalities, SWM strategic and action planning, municipality selection assessment for SWM strategic and action planning, Climate change and Clean Development Mechanism (CDM) framework linking with solid waste management workshop
10/2006-03/2010	Japan	Osaka Sangyo University Contact of reference person: Dr. Akira Hiratsuka, Professor, Email: ugi4339@mbn.nifty.com	Researcher	Mr. Pathak performed research and part-time work (technical assistance) during his PhD studies in aquifer vulnerability, surface and groundwater quality assessment and environmental risk assessment using statistical and knowledge-based models within GIS environment in watershed scale. He assessed and surveyed hydrogeological, hydrological, water quality and impact of solid and liquid waste on surface and groundwater in Bagmati Basin Nepal and developed aquifer vulnerability and nitrate risk map of same basin. He assessed impact of climate change and human activities on water quantity and quality in watershed scale. He also prepared research proposals/plans, peer review scientific papers and technical reports.
01/2004-09/2006	Tribhuvan University and other universities and training center, Nepal	GIS mapping and Training Program, Professional Networks Pvt. Ltd. and District Development Committee (DDC) Kathmandu, Nepal	Lecturer/ Trainer	Conducted lecture, tutorial and laboratory class of Geographic Information System (GIS) for M. Sc. in Geotechnical Engineering, Soil Mechanics, Foundation Engineering, sub surface hydrology, hydrogeology, Geographic Information System (GIS) for undergraduate students, Mr. Pathak also worked as GIS expert to analyse spatial and non-spatial data and developed VDC wise mapping of Kathmandu district. He also conducted training on GIS for general users and professionals on "Intensive GIS Training for Professionals".
01/2002-12/2003	Dhading, Nepal	Local governance Programme, Joint project by Ministry of Local Government of Nepal and United Nation Development Program (UNDP), DDC Dhading, Nepal	Infrastructure Development Officer/Transport Planner	Provide technical and strategic inputs to local government in planning and implementation of infrastructure development programs and plans, Soil investigation works and slope stability analysis for new roads, baseline inventory and condition survey of existing roads, design of slope protection measures including civil and bio-engineering structures Developed rural road digitized map and GIS based database management system of the district, Updating district transport master plan (DTMP) of Dhading district, Preparation of Infrastructure Development Plan of district, Preparation of VDCwise poverty mapping , Geotechnical investigation, design, estimate and preparation of contract document of office building of District Development Committee, Dhading, Working as focal person of IRAP (Integrated Rural Accessibility Planning) task team in DDC Dhading for local level planning, Responsible for achieving all the outputs related to seed grant projects of Local development Fund, Conduct trainings, project planning and evaluation workshops in district.
10/2001-12/2001	Bara, Nepal	ETA Consult, Kathmandu, Nepal	Engineer/Transport Planner	Prepare checklists, technical, socio-economic data collection, Prepare IDPM (Indicative Development Potential map), Identify and prioritize different type of road networks, Prepare GIS mapping of road network, Prepare five year's district transport master plan (DTMP).

Major Publications:

- **Pathak D.R.**, Mainali B. et. al (2020). Quantification and characterization of the municipal solid waste for sustainable waste management in newly formed municipalities of Nepal, Waste Management & Research, <https://doi.org/10.1177/0734242X20922588>
- **Pathak D.R.**, Mainali B. (2019) Status and Opportunities for Materials Recovery from Municipal Solid Waste in Kathmandu Valley, Nepal. In: Zhan L., Chen Y., Bouazza A. (eds) Proceedings of the 8th International Congress on Environmental Geotechnics Volume 1. ICEG 2018. Environmental Science and Engineering. Springer, Singapore
- **Pathak, D.R.** and K.C., S. (2016). Municipal solid waste generation, composition and material recovery in Kathmandu Valley, Nepal. Waste Management, 54 (2016), II-III.
- **Pathak, D.R.**, Yatabe, R., Bhandary, N.P. (2015). Identification of major factors affecting spatial and temporal variation on water quality in Kathmandu basin, Nepal using multivariate statistical analysis, International Journal of Water, 9(3), 209-225.
- **Pathak, D. R.**, Bhandary, N. P., Yatabe, R. (2014). Hierarchical Fuzzy Rule based Model for Groundwater Vulnerability and Assessment of Nitrate Pollution Hazard in Kathmandu Basin. Proceedings of International Symposium Geohazards: Science, Engineering and Management, Kathmandu, Nepal.
- **Pathak, D.R.**, Yatabe, R., Bhandary, N.P. (2013). Statistical analysis of factors affecting groundwater quality in shallow aquifer of Kathmandu, Nepal. International Journal of Water Research, 1 (1), 12-20.
- **Pathak, D.R.**, Hiratsuka, A., Yamashiki, Y. (2011). Influence of Anthropogenic Activities and Seasonal Variation on Groundwater Quality of Kathmandu using Multivariate Statistical Analysis. In: Peters et al. (Eds.), Assessment of Water Quality under Changing Climate Conditions (Proceedings of symposium H04 held during IUGG2011 in Melbourne, Australia, July 2011), IAHS Publ. 348(24), 67-72.
- **Pathak, D.R.**, Hiratsuka, A. and Yamashiki, Y. (2011). Current status and trend of nitrate-N and factors affecting its concentration in shallow groundwater systems of Kathmandu. ASCE Conf. Proc. 414, 102 (2011), 990-999, doi: 10.1061/41173(414)102
- **Pathak, D.R.** and Hiratsuka, A. (2011). An integrated GIS based fuzzy pattern recognition model to compute groundwater vulnerability index for decision making. Journal of Hydro-environment research, 5(1), 63-77, doi.org/10.1016/j.jher.2009.10.015 (Most downloaded paper ranked 1st on the top 25 for JHER 2011 full year)
- **Pathak, D.R.** and Hiratsuka, A. (2010). An investigation of nitrate and iron concentrations and their relationship in shallow groundwater systems of Kathmandu. Desalination and Water Treatment, 19(1-3), 191-197. doi:10.5004/dwt.2010.1884
- **Pathak, D.R.**, Hiratsuka A., Awata, I. and Chen, L. (2009). Groundwater vulnerability assessment in shallow aquifer of Kathmandu Valley using GIS based DRASTIC model. Environmental Geology, 57(7), 1569-1578. doi: 10.1007/s00254-008-1432-8
- **Pathak, D.R.**, Hiratsuka, A. and Awata, I. (2009). Assessment of nitrate contamination in groundwater of shallow aquifer in Kathmandu. In: Taniguchi et al. (Eds.), Trends and Sustainability of Groundwater in Highly Stressed Aquifers. IAHS Publ. 329, 178-183.
- **Pathak, D.R.**, Hiratsuka, A., Awata, I., and Chen, L. (2009) Combining Rule-Based Fuzzy Model with GIS to Predict Groundwater Vulnerability to Contamination. World Environmental and Water Resources Congress 2009, 1743-1752. doi: 10.1061/41036(342)173
- **Pathak, D.R.**, Hiratsuka, A. and Awata, I. (2008). Application of DEM to identify infiltration zone using GIS. Asian Journal of Water Environment and Pollution, 5(3), 7-13.
- **Pathak, D.R.**, Gharti, H.N., Singh A. and Hiratsuka, A. (2008). Stochastic modeling of progressive failure in heterogeneous soil slope. Geotechnical and Geological Engineering, 26(2), 113-120. doi:10.1007/s10706-007-9151-6
- **Pathak, D.R.**, Hiratsuka, A., Awata, I. and Chen, L. (2008). GIS based fuzzy optimization method for groundwater vulnerability evaluation. Proceedings of 2nd international conference in bioinformatics and biomedical engineering - Environmental pollution and public health track, DOI: 10.1109/ICBBE.2008.1011, 2716-2719 (**Best paper awarded**).

Paper presentation on International conferences/symposium:

- Keynote Speaker, Dhangadhi Development Conference, March 2020
- Keynote speaker, "Integrated Healthcare Waste Management and WASH in HCFs. A jointly workshop by The Ministry of Health and Population (MoHP), Government of Nepal together with concerned line ministries and supporting partners like GIZ, WHO, UNDP, UNICEF, WaterAid, SNV, Kathmandu, Nepal, December 2019. <https://hcwm.mddohs.gov.np/index.php/our-program/speakers>
- Invited Speaker, National conference on solid waste management, 6-7 December, 2019
- Invited Lecture, First Himalayan Engineering Geological Congress (HEGC-I) - Engineering Geology and Geotechniques for Developing Countries, May 11-16, 2019, Kathmandu, Nepal.
- 8th International Congress on Environmental Geotechnics 2018 (8ICEG 2018), Hangzhou, China on Oct. 28 – Nov. 1, 2018.
- The fourth symposium of Nepal Japan Society for the Promotion of Science (JSPS) Alumni Association (NJAA), October 5, 2018 at Hotel Radisson, Lazimpat, Kathmandu.
- International Workshop on Challenges and Opportunities in Sustainable Solid Waste Management for Environment Protection, Kathmandu, Nepal, 9 December, 2014
- 7th International Congress on Environmental Geotechnics 2014 (7ICEG 2014), Melbourne, Australia, November 10-14, 2014
- International Symposium Geohazards: Science, Engineering and Management, Kathmandu, Nepal, 20-21 Nov, 2014.
- ICSWHK2013: 2nd International Conference on Solid Waste 2013: Innovation in Technology and Management, Hong Kong SAR, China, 5-9 May 2013
- National workshop on formulating Solid Waste Management (SWM) policy and strategies for implementation, ADB TA, August 2012, Kathmandu, Nepal

- IAHS Symposium on Assessment of Water Quality under Changing Climate Conditions held during IUGG2011 in Melbourne, Australia, June 28 - July 7, 2011
- 2011 world environmental and water resources congress, ASCE, May 22 – 26, 2011, Palm Springs, CA, USA
- ICSWHK2011: The International Conference on Solid Waste 2011 Moving Towards Sustainable Resource Management, Hong Kong SAR, China, 2-6 May 2011
- 13th International conference on IWA DIPCON 2009, 12-16 October, 2009, Seoul, South Korea
- Joint IAHS & IAH Convention, Hyderabad, India, September 2009
- 2009 world environmental and water resources congress, ASCE, May 17–21, 2009, Kansas City, MO, USA, 1743-1752
- 2009 ground water summit, NGWA, April 19 -23, Tucson, AZ, USA.
- 36th IAH congress, October 26-31, 2008, Toyama, Japan
- 2nd international conference in bioinformatics and biomedical engineering - Environmental pollution and public health track, May 16 – 18, 2008, Shanghai, China
- 2008 ground water summit, NGWA, March 31-April 3, Memphis, USA.
- 2nd international conference of GIS/RS in hydrology, water resources and environment, September 7-13, 2007, Guangzhou, China
- 6th pacific symposium on flow visualization and image processing, May 16-19, Hawaii, USA
- Seminar in geotechnical engineering, June 2003, Kathmandu, Nepal

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.

Dhundi Raj Pathak, PhD

15/06/ 2020

Name

Month/Day/Year