



E&S Solutions

AI & IA: Keeping the Human-in-the-Loop

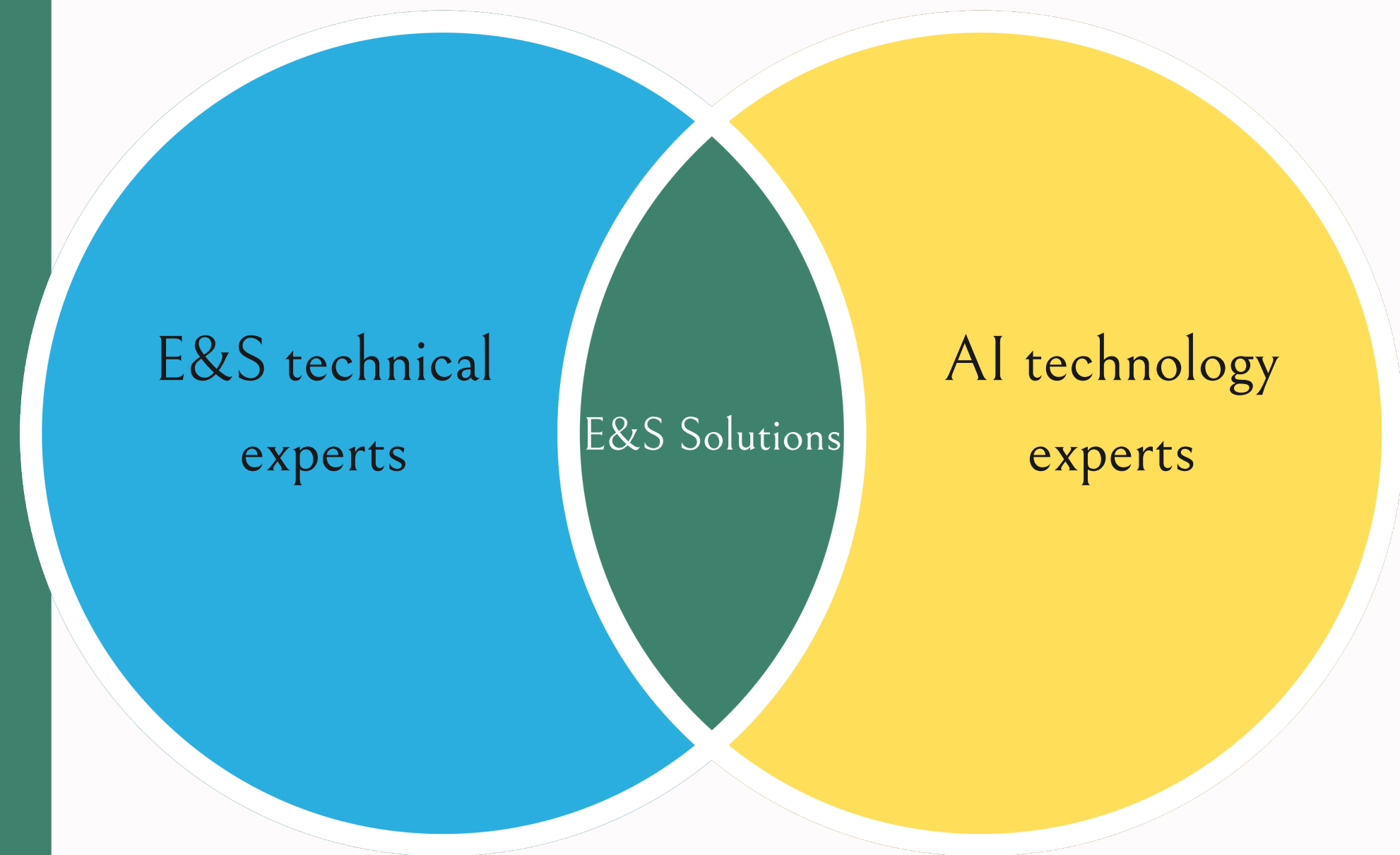
www.essolutions.ai

About Us

E&S Solutions was founded in 2024 by Ildiko Almasi Simsic with the mission to develop technology solutions designed for E&S professionals.

Ildiko is a social development specialist who worked with IFIs, consultancies, government and public sector. She understands the challenges of E&S experts through various tasks and project phases.

E&S Solutions is a very unique company that combines world leading E&S and technology expertise. We believe in using technology ethically and transparently to increase efficiency by enhancing human capacity to let you do the fun part: applying your expert judgement.



The company's developed myESRA is the world's first AI-powered research assistant designed specifically for E&S work, and the private chatbot.

Overview

- Workloads and workflows
- Principles of using AI
- myESRA
- Private ESRA
- E&S Workflow with AI
- What's next?



Workloads and workflows

IFIs and DFIs

- Thousands of new commitments each year to support global sustainability agendas
- World Bank Group is expected to increase its lending by USD 125 billion in the next decade

Private sector

- Goldman Sachs is deploying USD 750 billion across investing, financing, and advisory activities by 2030.
- Private companies broadening sustainability initiatives to implement voluntary and mandatory sustainability standards.

Consultants

- More data and information than ever
- Outdated IT and filing systems
- Losing institutional knowledge when people leave
- Increased workload – new projects and portfolio review (accountability)

The amount of work is growing dramatically and the more projects we can process, the greater our impact globally!

Workloads and workflows

Scoping phase

- Scoping TOR
- Data: previous projects, secondary baseline, sector specific info
- Contextual risk screening
- Scoping report

ESIA phase

- ESIA TOR
- ESIA report structure
- Legislation and lender requirements
- Secondary baseline data
- Questionnaires
- Survey methodology for primary data collection
- Industry best practice for mitigation measures

Supplemental studies, annexes:

- TOR for additional consultants
- Report structures
- More technical, specialized data (biodiversity, resettlement)
- International best practice

Management plans, DD, portfolio review

- Structures for management plans – include international best practice
- Review of large amounts of documents – cross-reference each (roles & resp.)
- Process confidential internal documents for portfolio review
- Access previous project information

Workloads and workflows

1. Document templates/checklists
2. Access data and statistics
3. Previous project information

The thousands of hours of manual and repetitive work E&S experts do each year lends itself to the application of modern technology to streamline workflows and make data discoverable within seconds.

What we need is a tool to empower E&S professionals to work more efficiently and deliver more projects.



Principles of using AI

What is AI?

Technology that enables computers and machines to simulate human intelligence and problem-solving capabilities.

Capability based types of AI

- Narrow AI
- Artificial General Intelligence (AGI)
- Artificial superintelligence

Functionality based types of AI

- Reactive
- Limited memory AI
- Theory of mind AI
- Self-aware AI

Analytics in Big Data

Descriptive, Diagnostic, Predictive, Prescriptive

Automation

Use of machines or technology to perform tasks with/out human intervention

Machine learning

- Supervised
- Unsupervised
- Semi-supervised
- Reinforcement

Deep learning

- Artificial neural networks used to learn from data (CNNs, Deep reinforcement learning, RNNs)

Principles in using AI

We believe in using AI to enhance human performance. Bots should work for us not instead of us. We used the human-in-the-loop principle when designing myESRA.

Human experts select the data to be added to the knowledge base

We use AI to automate the retrieval, processing and renaming of documents.

We optimised a state-of-the-art LLM for the chatbot to retrieve data.

Human experts interpret and use the data and information.

Introducing myESRA

myESRA is your AI-powered Environmental and Social Research Assistant designed to streamline data collection and research workflows.

myESRA significantly improves the efficiency of manual, time-consuming, and error-prone research tasks such as finding data and information.



Access the world's most comprehensive E&S specific knowledge base

Everything you need for E&S project research, background information, and more, with regular updates.



Chatbot answering questions

Unlike ChatGPT, which is trained on the entire internet (including inaccurate and outdated information), myESRA was fine-tuned by E&S experts on E&S-specific information.



Includes citations and links to sources
myESRA delivers accurate answers that include citations with links to the original source material for easy verification and more context.

Building our knowledge base

- Disclosed project documents (IFI, DFI, EP Bank, ECA)
- National legislation (resettlement, EIA process and more)
- Academic and industry research
- International conventions, agreements
- IFI research papers
- IFI Policies, guidance notes, and good practice notes
- National and international statistics

Our knowledge base has millions of documents and it is growing!



The myESRA bots go through our online sources every month to get the most up to date information and data!

Chatbot

The knowledge base is accessible through our chatbot:

- It follows the design of similar products for intuitive use (ChatGPT)
- Unlike generic chatbots, it is only connected to our knowledge base to avoid hallucinations and false information
- Clickable sources are displayed under the response

Which bird species were observed during the winter season monitoring of the Zarafshan wind project?

During the winter season monitoring of the Zarafshan Wind Project, the following bird species were observed:

- Kestrel (*Falco tinnunculus*)
- Saker Falcon (*Falco cherrug*)
- Golden Eagle (*Aquila chrysaetos*)
- Eurasian Griffon (*Gyps fulvus*)
- Lammergeier (*Gypaetus barbatus*)
- Cinereous Vulture (*Aegypius monachus*)
- Steppe Eagle (*Aquila nipalensis*)
- White-tailed Sea-eagle (*Haliaeetus albicilla*)
- Little Owl (*Athene noctua*)
- Crested Lark (*Galerida cristata*)
- Lesser Short-toed Lark (*Alaudala rufescens*)
- White-winged Lark (*Alauda leucoptera*)
- Isabelline Wheatear (*Oenanthe isabellina*)
- Black-necked Wheatear (*Oenanthe melanoleuca*)
- Long-legged Buzzard (*Buteo rufinus*)
- Common Buzzard (*Buteo buteo*)
- Rook (*Corvus frugilegus*)
- Hooded Crow (*Corvus cornix*)
- Brown-necked Raven (*Corvus ruficollis*)
- Finsch's Wheatear (*Oenanthe finschii*)
- Desert Finch (*Rhodospiza obsoleta*)

These observations were made in various conditions and involved large birds of prey, passerine species, and several other birds possibly wintering or just passing through the territory .

Sources:

- [ESIA_AsianDevelopmentBank_2022_Uzbekistan_ZarafshanWindFarmProject_WoodGroup_EN.pdf](#)

How many people, households or land plots are affected by the Nenskra hydro project?

Number/Value: 89 households, 392 individuals. Calculation Explanation: The document provided a direct count of households and individuals affected by the Nenskra hydro project. The affected households include 29 vulnerable households and 10 households headed by women. Specifically, the households will lose 37 hectares of land, 14 wooden cabins, fences, 1288 trees, 0.1 hectares of maize, and 0.1 hectares of potatoes due to the project. Three pasture areas will also be affected. More information: While the exact number of affected land plots is not provided, the document clarifies that these impacts are associated with economic resettlement, which entails loss of land, non-residential structures, trees, and annual crops, rather than physical resettlement .

Sources:

- [SIA_SLRConsulting_2015__Hydropower_NenskraHydropowerProjectSIA_JSCNenskraHydro_EN.pdf](#)
- [LALRP_SLRConsultingFranceSAS_2017_Georgia_Hydropower_NenskraHydropowerProjectLALRP_JSCNenskraHydro_...](#)

Renaming

We use AI to rename each document according to our standard format.

This makes the documents easily readable for humans and machines.

Before



After

1687793320-Red_List_Partnership_Agreement_May_2023.pdf	R_IUCN_2023_International_Conservation_RedListPartnershipAgreement_NewMexicoBioParkSocietyBirdLifeInternationalBotanicGardensConservationInternationalBGCICenterforBiodiv					
1698211819-IUCN_2010_RLIs_for_European_terrestrial_vertibrates-2.pdf	R_IUCN_2010_Europeancountries_EnvironmentBiodiversityConservation_EuropeanTerrestrialVertebratesRLI_EuropeanEnvironmentAgency_EN.pdf					
1698211819-IUCN_2010_RLIs_for_European_terrestrial_vertibrates.pdf	R_IUCN_2010_EU_Environment_RLIEuropeanTerrestrialVertebrates_EuropeanEnvironmentAgency_EN.pdf					
2. Grinding Unit_Etude d'Impact Environnementale et Sociale_Unité de Broy	ESIA_AfricainedeGotechniqueTechnologiesetdeServices_2019_Guinea_CementGrinding_SouguetaCementGrindingUnit_DIAMONDCEMENTGUINEA_FR.pdf					
2018-10 EIA VOLUME II TOMO I DIAGNOSIS_PHYSICAL ENVIRONMENT EN.pdf	ESIA_PyryTecnologiaLtda_2018_Brazil_PulpandPaper_DissolvingPulpMillAssessment_LDCeluloseSA_EN.pdf					
2018-10 EIA VOLUME III ENVIRONMENTAL IMPACTS ASSESSMENT EN.pdf	ESIA_PyryTecnologiaLtda_2018_Brazil_PulpandPaper_LDCeluloseSAMill_LDCeluloseSA_EN.pdf					
20200914 BMUK DRAFT LARP 1 (1).pdf	LARP_AsianDevelopmentBank_2020_Uzbekistan_RailwayElectrification_CARECCorridor2Electrification_OzbekistonTemirYollari_EN.pdf					
2021-022-En.pdf	R_IUCN_2021_Global_EnvironmentalConservation_IUCNGreenStatusof_IUCNSSCSpeciesConservationSuccessTaskForce_EN.pdf					
2021_08_16_CAWA_full_life_cycle_plan_EN.pdf	R_CanadianWildlifeServiceandBirdlifeInternational_2021_CanadaEcuador_WildlifeConservation_CanadaWarblerConservationPlan_Unspecified_EN.pdf					
202309-ifc-guidance-note-on-financial-intermediaries 2.pdf	GN_IFC_2023__FinancialSector_FinancialIntermediariesGuidanceNote_FIClients_EN.pdf					
202309-ifc-guidance-note-on-financial-intermediaries.pdf	GN_IFC_2023_Global_FinancialSector_GuidanceFinancialIntermediariesNote_FinancialIntermediaryClients_EN.pdf					
220822_Vektalis_Korçuta Project Revised LBP Draft V4 Clean.pdf	LBP_Vektalis_2022_Albania_Energy_KorçutaSolarPowerProject_EN.pdf					

Type of document | Publisher | Year | Country | Sector | Name of project | Name of client | Language

myESRA use cases

Past project information

Templates/document structure

National legislation and gap analysis

Contextual risk screening

Compliance check

National or regional statistics

Research on best practice or
unique cases

The screenshot displays two chat messages from the myESRA platform. Each message consists of a user query in a dark green bubble and a detailed AI response in a white bubble. The responses include general information, specific details, and a list of sources with PDF file names.

Message 1:

Query: What is the industrial noise standard in Uzbekistan?

Response:

General Response: The industrial noise standard in Uzbekistan is detailed in the document "SanPiN No. 0325-16. Sanitary Standards for Permissible Noise Levels at the Workplace". This standard provides acceptable noise levels for various types of work. Specifically, the acceptable noise levels for different types of work at permanent workplaces in industrial premises and enterprises operated since March 12, 1985, are set at 80 dB(A). For heavy industry, the level is set as an equivalent level of Laeq, 8h, at 85 dB(A), and for light industry, it ranges from 50-65 dB(A) for the same duration.

Additionally, for comparison, the document also cites the general EHS (Environmental, Health, and Safety) Guidelines of the International Finance Corporation (IFC), which covers noise levels for various working environments. It is indicated that for construction phase monitoring, the World Bank Group (WBG) guideline limits will be followed as they are slightly more stringent at defining the nighttime noise period compared to Uzbek standards. However, for workplace noise, the national guidelines of Uzbekistan shall be followed.

More information: For territories adjacent to homes, clinics, dispensaries, rest homes, boarding houses, nursing homes, childcare facilities, schools, and other educational institutions, libraries, etc., the permissible noise levels are 55 dB(A) from 7 am to 11 pm and 45 dB(A) from 11 pm to 7 am according to SanPIN No. 0331-16.

Sources:

- [ESIA_AsiandevlopmentBank_2023_Uzbekistan__BashWindPowerProject_ACWAPower_EN.pdf](#)
- [IEE_ADB_2023_Uzbekistan_Energy_PowerTransmissionGridEnhancement_NationalElectricityGridofUzbekistan_EN.pdf](#)
- [IEE_AsiandevlopmentBank_2023_Uzbekistan_Energy_250MWBukharaSolarStorage_MasdarCleanEnergy_EN.pdf](#)

Message 2:

Query: What was the cut-off date for the Panvel Karat Double Line corridor project MUTP-3?

Response:

The cut-off date for the Panvel Karat Double Line corridor project MUTP-3 for titleholders is the date of publication of the preliminary notification for Direct Purchase of private land as per Government Decision No. SANKIRNA-03/2015 dated 12/05/2015. For non-titleholders, the cut-off date is 1st January 2018, as per Government Decision Champa-2017/Pra.Kra.23/Navi-26 dated 13th June 2018 .

Sources:

- [SIARAP__2019_India_Transport_PanvelKarjatDoubleLineCorridor_MumbaiRailwayVikasCorporationLtd_EN.pdf](#)
- [SIA_FortressInfraconLimitedMumbai_2021_India_Infrastructure_ImprovementUpgradationDhodarAli_GovernmentofAssa...](#)

myESRA as a research tool

During Beta testing, we received feedback that myESRA has a secondary use case as a research assistant for IFI staff working on gender, inclusion, surveys, sector research, and economic research.

Raw data from national statistical offices

Our knowledge base includes data from 190 countries and regional statistical organisations covering topics beyond E&S, such as industry, demographics, economics, labour market, GDP, energy, mortality, health, and more.

Academic research on E&S topics

Technical papers on climate change, biodiversity, gender, and other topics are included in the myESRA knowledge base.

Industry research and data

Research papers on industry level such as renewables, oil and gas, mining or transportation is picked up by our bots.

If we don't already have what you need, we can add it in a matter of days!

Introducing the Private ESRA

Ever struggled with review of pre-disclosure ESIA package or ESMS? Faced challenges spotting inconsistencies or verifying whether commitments made their way into the management plans?

We hear you, so we designed the private ESRA, your private and personal E&S research assistant who is ready to help you.



Private knowledge base

You are in control of your data. We don't use it for training purposes and once you erase the documents, they are removed without a trace.



Chatbot answering questions

The LLM is different from the myESRA model, but equally efficient at supporting you.



Collaborate with your team

Invite other subscribers to view and interact with the documents you uploaded. As a team leader, you will see what your team is asking and can add/remove documents.

Main features of Private ESRA

- Similar design and user experience as myESRA
- Upload up to 100 documents into your own knowledgebase
- Our bots will process your data and prepare it for query
- AI-powered private chatbot tailored to your needs
- Add unlimited team members to collaborate
- When you're done all your documents and chat history are wiped

Use cases:

- ✓ Pre-disclosure ESIA package review for consistency
- ✓ Review of ESMS to ensure that commitments from ESIA are in management plans
- ✓ Monitoring report review against corrective actions and ESIA
- ✓ Complaints investigation review of confidential information

E&S Workflow with AI

ESIA scoping and contextual risk assessment with myESRA

<https://youtu.be/AALbzy4460s>

E&S Workflow with AI

Accessing project information with myESRA

<https://youtu.be/MFsYYnjeHWM>

E&S Workflow with AI

ESDD using Private ESRA

<https://youtu.be/gA98QnkW5Yg>

What's next?

myESRA new features

Unlock new features, more generative capabilities, potential to do predictions and calculations.

Renaming script upon request

Reach out to get your free copy and instruction rename all your internal files based on our naming convention.

ESRAgeo

The smartest map you've ever seen!

- IFI, DFI, EP Bank and ECA projects mapped
- Smart E&S layers
- 'Chat' to selected projects

AI supporting stakeholder engagement and GRMs

Supporting developers in automating interaction with user groups and collecting feedback on projects.

E&S Projects Newsletter

Bi-weekly updates on IFI project disclosures and updates straight in your inbox! Subscribe on our website.

#IAIA25 Session

We will be there next year to talk about the first 12 months of products and share more insight on further development.



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