

## Europass Curriculum Vitae



### Personal information

First name(s) / Surname(s) Andrii Chtpizhnyi  
 Address(es) 144/2 Gerasim Kondratiev str., Apt. 2, Sumy, Ukraine  
 Telephone(s) +380990447297  
 Fax(es)  
 E-mail [andrii.chepizhnyi@snau.edu.ua](mailto:andrii.chepizhnyi@snau.edu.ua)  
 Nationality Ukraine  
 Date of birth 17.02.1987  
 Gender Male

### Current employment / Occupational field

**Ph.D., Associate Professor, Head of the Department of Agricultural Engineering, Sumy National Agrarian University;**

### Work experience

|                                      |                                                                                                                                                                                    |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dates                                | 2004–2009                                                                                                                                                                          |
| Occupation or position held          | Student                                                                                                                                                                            |
| Main activities and responsibilities | Good learning                                                                                                                                                                      |
| Name and address of employer         | Sumy National Agrarian University, Sumy region, Sumy, 160, Gerasim Kondratiev, 40021, Ukraine                                                                                      |
| Type of business or sector           | Faculty of Engineering and Technology                                                                                                                                              |
| Dates                                | 2009-2011                                                                                                                                                                          |
| Occupation or position held          | Assistant professor                                                                                                                                                                |
| Main activities and responsibilities | Duties of Assistant professor                                                                                                                                                      |
| Name and address of employer         | Sumy National Agrarian University, Sumy region, Sumy, 160, Gerasim Kondratiev str., 40021, Ukraine                                                                                 |
| Type of business or sector           | Faculty of Engineering and Technology                                                                                                                                              |
| Dates                                | 2013–2017                                                                                                                                                                          |
| Occupation or position held          | Postgraduate student                                                                                                                                                               |
| Main activities and responsibilities | Postgraduate student duties                                                                                                                                                        |
| Name and address of employer         | National University of Life and Environmental Sciences of Ukraine, Kyiv, 15, Heroes of Defense Str., 03041, Ukraine                                                                |
| Type of business or sector           | Faculty of Design and Engineering                                                                                                                                                  |
| Dates                                | 2026 - Deputy Dean for Educational and Organizational Work, Part-Time and Dual Education, Faculty of Engineering and Technology, Sumy NAU.                                         |
| Occupation or position held          | Ph.D., Associate Professor, Head of the Department of Agricultural Engineering, Sumy National Agrarian University, Sumy region, Sumy, 160, Gerasim Kondratiev str., 40021, Ukraine |
| Main activities and responsibilities | Teaching and scientific activities in the sphere of energy in agriculture                                                                                                          |

| Name and address of employer                                   | Sumy National Agrarian University, 160 H. Kondratiieva Str., Sumy, 40021, Ukraine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|--------------------|-----------------|-------------------|-----------------|---------|-----------------|---------|--|-----------|--|---------|--|--------------------|--|-------------------|--|--|--|----|-----------------|----|-----------------|----|-----------------|----|-----------------|----|-----------------|----|------------|----|------------|----|------------|----|------------|----|------------|----|-----------------|----|-----------------|----|-----------------|----|-----------------|----|-----------------|
| Type of business or sector                                     | Higher Educational Institution (Agricultural Sector)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Principal subjects/occupational skills covered                 | Engineer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Name and type of organisation providing education and training | Sumy National Agrarian University, Sumy region, Sumy, 160, Gerasim Kondratiev str., 40021, Ukraine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Level in national or international classification              | Dipl. Ing (institute)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| <b>Personal skills and competences</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Mother tongue(s)                                               | Ukraine                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Other language(s)                                              | English, Ukrainian                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Self-assessment<br><i>European level (*)</i>                   | <table border="1"> <thead> <tr> <th colspan="4">Understanding</th> <th colspan="4">Speaking</th> <th colspan="2">Writing</th> </tr> <tr> <th colspan="2">Listening</th> <th colspan="2">Reading</th> <th colspan="2">Spoken interaction</th> <th colspan="2">Spoken production</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> </tr> <tr> <td>A1</td> <td>Basic User</td> <td>A1</td> <td>Basic User</td> <td>A1</td> <td>Basic User</td> <td>A1</td> <td>Basic User</td> <td>A1</td> <td>Basic User</td> </tr> <tr> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> <td>C2</td> <td>Proficient user</td> </tr> </tbody> </table> | Understanding |                 |                    |                 | Speaking          |                 |         |                 | Writing |  | Listening |  | Reading |  | Spoken interaction |  | Spoken production |  |  |  | C2 | Proficient user | C2 | Proficient user | C2 | Proficient user | C2 | Proficient user | C2 | Proficient user | A1 | Basic User | A1 | Basic User | A1 | Basic User | A1 | Basic User | A1 | Basic User | C2 | Proficient user | C2 | Proficient user | C2 | Proficient user | C2 | Proficient user | C2 | Proficient user |
| Understanding                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                 | Speaking           |                 |                   |                 | Writing |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Listening                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Reading       |                 | Spoken interaction |                 | Spoken production |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| C2                                                             | Proficient user                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | C2            | Proficient user | C2                 | Proficient user | C2                | Proficient user | C2      | Proficient user |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| A1                                                             | Basic User                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1            | Basic User      | A1                 | Basic User      | A1                | Basic User      | A1      | Basic User      |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| C2                                                             | Proficient user                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | C2            | Proficient user | C2                 | Proficient user | C2                | Proficient user | C2      | Proficient user |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| <b>Ukrainian</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| <b>English</b>                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| <b>Russian</b>                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Social skills and competences                                  | I can and I am used to work in the team within the framework of international educational and scientific projects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Organisational skills and competences                          | I am supervising the organization of the department's robotics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Computer skills and competences                                | Work with almost all MS Office, SolidWorks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Artistic skills and competences                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| Driving licence                                                | Category B (car)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |
| <b>Additional information:</b>                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |                 |                    |                 |                   |                 |         |                 |         |  |           |  |         |  |                    |  |                   |  |  |  |    |                 |    |                 |    |                 |    |                 |    |                 |    |            |    |            |    |            |    |            |    |            |    |                 |    |                 |    |                 |    |                 |    |                 |

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|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scientific Research Topic and Publications | <ol style="list-style-type: none"> <li>1. Loboda, V. B., Zhmailov, V. N., Dovzhyk, M. Ya., Khursenko, S. N., Chepizhnyi, A. V. (2021). Study of the work of a getter-ion ultrahigh-vacuum orbitron pump. ORION Research-and-Production. Applied Physics №1. P. 75-81.</li> <li>2. Loboda, V. B., Zubko, V. M., Khursenko, S. M., Kravchenko, V. O., Chepizhnyi, A. V.; Sarzhanov, B. A. (2023). Mass Spectrometric Study of the Chemical Composition of the Gas Environment in the Zone of Electrospark Alloying. Sumy State University. Journal of Nano- and Electronic Physics, Vol. 15. № 2. DOI: 10.21272/jnep.15(2).02028.</li> <li>3. Loboda, V. B., Zubko, V. M., Khursenko, S. M., Kravchenko, V. O., Chepizhnyi, A. V. (2023). X-Ray Spectral Microanalysis of Copper-Nickel Thin Films Alloys. Journal of Nano- and Electronic Physics. Vol. 15. №5. DOI: 10.21272/jnep.15(5).05014</li> <li>4. Miroshnyk, Oleksandr; Moroz, Oleksandr; Shchur, Taras; Chepizhnyi, Andrii; Qawaqzeh, Mohamed; Kocira, Slawomir. (2023) Investigation of Smart Grid Operation Modes with Electrical Energy Storage System. Energies. DOI: 10.3390/en16062638.</li> <li>5. Юрченко, О., Барсукова, Г., Чепіжний, А., Зубко, В., Тимошенко, Г. (2023). Пошук місця пошкодження обмотки електроенергетичного обладнання за зміною робочої температури. Праці Таврійського державного агротехнологічного університету, 23(2), 167-176. <a href="https://oj.tsatu.edu.ua/index.php/pratsi/article/view/647">https://oj.tsatu.edu.ua/index.php/pratsi/article/view/647</a>.</li> <li>6. Шашков, С. В., Зубко, В. М., Чепіжний, А. В. (2023). Організаційно-економічні складові програм розвитку електричних мереж. Herald of Khmelnytskyi National University. Economic Sciences, 324(6), 179-183. <a href="https://doi.org/10.31891/2307-5740-2023-324-6-29">https://doi.org/10.31891/2307-5740-2023-324-6-29</a></li> <li>7. Loboda, V. B., Zubko, V. M., Khursenko, S. M., Saltykova, A. I., Chepizhnyi, A. V. (2024). SIMS Analysis of Copper-Nickel Thin Films Alloys. Journal of Nano- and Electronic Physics. DOI: 10.21272/jnep.16(1).01011Copy to clipboard.</li> <li>8. Loboda V., Zubko V., Khursenko S., Kravchenko V., Chepizhnyi A. (2024). Orbitron pump with nitrogen cryopanel. Problems of Atomic Science and Technology. DOI: 10.46813/2024-149-038.</li> <li>9. Savchenko M., Radchuk O., Gerasimenko V., Chepizhnyi A. (2024). Development of a methodology for calculating the consumption of a combined renewable energy source for a mini-workshop. IOP Conference Series: Earth and Environmental Science. Conference Paper. DOI: 10.1088/1755-1315/1429/1/012018.</li> <li>10. Loboda, V. B., Khursenko, S. M., Kravchenko, V. O., Zubko, V. M., Chepizhnyi, A. V. (2025). Study of the Elemental Composition of Thin Nanocrystalline Films of CoNi and FeNi Alloys by X-ray Spectral Microanalysis. Journal of Nano- and Electronic Physics. DOI: 10.21272/jnep.17(2).02020Copy to clipboard.</li> <li>11. Юрченко, О. Ю., Барсукова, Г. В., Чепіжний, А. В., Івченко, О. В. (2025). Сонячні електростанції на дорогах загального користування як шлях до покращення екологічної безпеки. Вісник Сумського НАУ. Серія «Механізація та автоматизація виробничих процесів». Вип. 2 (60). С. 75-80. DOI <a href="https://doi.org/10.32782/msnau.2025.2.12">https://doi.org/10.32782/msnau.2025.2.12</a>.</li> <li>12. Сіренко, Ю. В., Чепіжний, А. В., Кучмистенко, О. В., Леонтьєва, В. В., Кондрат'єва, Н. О., Вольвач, Т. С., Савойський, О. Ю. (2025). Підвищення показників ефективності та якості моніторингу електропостачання молокозаводу. Механіка та автоматика агропромислового виробництва. Вип. 6 (120), С. 190-202. <a href="https://journal.imaap.org.ua/info/index.php?id=964">https://journal.imaap.org.ua/info/index.php?id=964</a></li> <li>13. Чепіжний А.В., Юрченко О.Ю. (2025). Особливості проектування систем енергозабезпечення підприємств по ремонту сільськогосподарської техніки з використанням комп'ютерного моделювання. Вісник Сумського національного аграрного університету. Серія «Механізація та автоматизація виробничих процесів». Вип. 4(62). С. 166-172. <a href="https://doi.org/10.32782/msnau.2025.4.24">https://doi.org/10.32782/msnau.2025.4.24</a></li> <li>14. Рясна, О.; Чепіжний, А.; Назаренко, О.; Комар, А.; Клименко, О.; Угольніков, Г.; Тесленко, О. (2025). Розробка мікроконтролерної системи керування BLDC-двигуном з наявними і відсутніми датчиками холла. Вісник Національного університету водного господарства та природокористування. Серія «Технічні науки». Том 2 №110(2025). Рівне : НУВГП. <a href="https://doi.org/10.31713/vt2202518">https://doi.org/10.31713/vt2202518</a></li> </ol> |
| Scientific Research Topic and Publications |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Projects Experience:                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Annexes</b>                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |