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Moving forward with the classification of environmental activities

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Abstract: *The SEEA CF research agenda has two interrelated items about the definition of resource management and implementation of the classification of environmental activities (CEA). Eurostat is the lead agency for those two items. A task force of European countries is supporting Eurostat. The London Group was informed in the 2018 meeting and discussed a few selected questions.*

This paper presents a new selection of three topics for discussion, namely: the structure of the reviewed classification of environmental activities, the status of energy storage as resource management and energy efficient buildings as resource management.

The debate in the LG can provide input for the next rounds of international discussions by experts. The Eurostat task force will meet again in October 2019 and work will continue throughout 2020.

1. Introduction

Eurostat is in the lead of two SEEA CF research agenda items:

- “Definition of resource management”
- “Implementation issues related to the classifications of environmental activities”

These two issues are interrelated. The scope and the structure of resource management determines the range and the structure of categories covered in the classification of resource management (CReMA); conversely experience from practical implementation of the classification feeds back in conceptual work on definitions and the scope.

The SEEA CF research agenda states that *'The finalization of the definition of resource management activity for the purposes of the Central Framework was complicated by a lack of clarity on the ideal scope of the resources that should be considered. In some circumstances, limiting consideration only to natural resources seemed appropriate, while in other cases, the inclusion of cultivated resources seemed relevant.'* For this reason, SEEA CF indicates as *'interim'* the status of the classification of the environmental activities relating to resource management.

Since SEEA CF was approved in 2012, countries in the EU gathered experience compiling resource management environmental activities in two ways: the EU mandatory collection of EGSS accounts and several pilot ReMEA accounts. EGSS covers environmental protection and resource management from the supply side; ReMEA covers resource management from the expenditure side. The main lessons learnt from those experiences were about borderline cases between environmental protection (EP) and resource management (RM) activities; determining a conceptually-sound and practically implementable scope of RM (what is in and what is out); recognition that the SEEA CF classification for RM does not fully meet the needs and some modifications were required. EP and RM are defined separately in SEEA CF paragraphs 4.12 and 4.13.

Since the second half of 2017, a Eurostat task force of European countries has been working on this matter. The London Group (LG) discussed progress on this work at the [2018 meeting](#)

[of the LG](#). In the last 12 months the Eurostat task force continued its work (see section 2). This paper proposes a LG discussion on a selection of specific issues (see section 3).

Questions to the London Group:

- 1. Discuss the relative merits (strengths and weaknesses) of the two current drafts for a reviewed classification of environmental activities (Tables 1 and 2 in section 3.1);**
- 2. Discuss the possible classification of “energy storage” (for the purposes of balancing out energy surplus with energy demand) as an environmental activity and, in particular, pumped-storage hydropower (used as a concrete example in this document) (section 3.2);**
- 3. Discuss the classification of the energetic refurbishment and construction of energy-efficient buildings as an environmental activity (section 3.3).**

2. Progress of the Eurostat task force since the 2018 LG meeting

In the second half of 2017 Eurostat set up a task force (TF) of European experts on the classification of environmental activities. The members are the following: Germany, Spain, France, Luxembourg, the Netherlands, Austria, Sweden, Italy, Portugal and Ireland, who joined in October 2018. The TF has two objectives: first, to provide and improve guidance to countries for their regular reporting to Eurostat. This is achieved by a thorough review of the explanatory notes of the (current classifications) CEPA and CReMA and analyses of methodological questions from reporting countries to Eurostat. This first TF objective is called short-term objective. The second objective is to review the current classification of environmental activities, meaning both EP and RM, with a view to address outstanding conceptual issues and propose a classification covering both EP and RM. This is a long-term objective, in the sense that it will take longer to finalise than the ‘short-term objective’. Ultimately, this work may also serve a broader audience of compilers beyond the EU.

Since the 2018 LG meeting, the TF further progressed. Three meetings took place, in October 2018, November 2018 and June 2019. The following threads of work advanced: the distinction between materials recovery (CReMA 11B, 13C and 14) and waste management (CEPA 3); definitions and recording of electric and resource-efficient vehicles and definitions and recording of energy-efficient buildings; improved guidance on water management (CReMA 10) and the design of the future integrated classification of environmental activities. In May 2019 the TF reported progress to the Eurostat working group on monetary environmental statistics and accounts and presented several documents as follows: draft revised explanatory notes for CEPA and CReMA¹, a guidance note on electric vehicles²,

¹ <https://circabc.europa.eu/ui/group/922b4700-1c83-4099-b550-763badab3ec0/library/cf9fac68-b1ce-4f95-94fb-a60844ce155a/details>.

² <https://circabc.europa.eu/ui/group/922b4700-1c83-4099-b550-763badab3ec0/library/73a5fbe4-819b-4f22-883b-3b6f114fbfec/details>

proposals for the recording of energy-efficient buildings and related activities³ and a proposal to improve the recording of CReMA 10 activities⁴.

The work of the TF is not over yet. A new meeting is scheduled in 2019 and the TF will report to the Eurostat working group in May 2020.

3. Specific work-in-progress items for feedback from the LG

This section proposes a LG discussion about a selection of issues advanced in the Eurostat task force in the last 12 months. Section 3.1 presents options for the structure of the reviewed classification of environmental activities. The goal for the LG discussion is not to choose one or the other but rather to discuss their relative merits. Sections 3.2 and 3.3 regard two cases in the borderline of the scope of RM activities. The views of the LG are welcome about these borderline cases.

3.1. Structure of the reviewed classification of environmental activities

As explained above, one of the goals is to review the classification of environmental activities, in particular to encompass under the same international classification EP and RM activities, which are currently addressed separately in the classifications CEPA and CReMA.

The fundamental design question is whether to keep EP and RM separated in the reviewed classification, i.e. one after the other, or combine them in classes not differentiating EP from RM. The former approach would require a smaller revision than the latter; for this reason we call them ‘small revision’ and ‘large revision’. In case EP and RM are kept separated (scenario ‘small revision’), the reviewed classification will likely keep the EP structure and classes rather unchanged from CEPA, as they are quite mature, and would have a structure for RM based on quite changed CReMA classes. In case EP and RM are merged (scenario ‘large revision’), there are no constraints on retaining the structure of the existing classification CEPA and CReMA.

This is a fundamental decision with profound consequences including breaks in historical time series of CEPA data, and future merging of EPEA and ReMEA in one single economic activity expenditure account, in spite of being at completely different stages of development. It would be a very big breaking point for 2 decades of expenditure accounts in Europe.

This design question was already raised in our [paper on the classification of environmental activities for the 2018 LG meeting](#). Last year the LG provided useful feedback, including sharing views that we are classifying not necessarily activities (or products) but environmental purposes and that the classification could, eventually, be used for the whole of monetary environmental accounts, including taxes. There were mixed views on the importance of keeping the distinction between RM and EP in the future integrated

³ <https://circabc.europa.eu/ui/group/922b4700-1c83-4099-b550-763badab3ec0/library/efef521d-6c2d-4ff3-ac77-e23b9b5d1327/details>; see also section 3.3 of this paper

⁴ <https://circabc.europa.eu/ui/group/922b4700-1c83-4099-b550-763badab3ec0/library/9b801b19-7323-4347-b6d5-88e72cab4e80/details>

classification, including views that both versions might be useful for addressing different questions.

At the time of the 2018 LG meeting, the Eurostat TF was developing 7 different versions of a reviewed classification with EP and RM combined, plus one version with EP and RM separated. In the last 12 months, several sub-groups of the TF worked to merge the 7 versions of ‘large revision’ integrated classification into one consolidated proposal and further refined the single ‘small revision’ working draft of the integrated classification. As a result, the TF is now working a single version of both the ‘large revision’ and ‘small revision’ integrated classification.

Table 1 below presents the current draft for an integrated classification consisting of two parts, one for EP and one for RM. The EP part is the current CEPA kept almost unchanged, reflecting the fact that this is a mature classification requiring minimal updates. The RM part is based on the CReMA classification currently in use in Europe, but significantly revised. Table 1 does not show subclasses for EP, for the sake of brevity.

Table 1. Current draft integrated classification with different parts for EP and RM

Proposed domains	State of discussion in the TF and outstanding issues
<i><u>PART A: Environmental protection</u></i>	
<u>CEPA 1 (Protection of ambient air and climate)</u>	Based on the current CEPA class
<u>CEPA 2 (Wastewater management)</u>	Based on the current CEPA class
<u>CEPA 3 (Waste management)</u>	It only include collection and final treatment of waste
<u>CEPA 4 (Protection and remediation of soil, groundwater and surface water)</u>	Based on the current CEPA class
<u>CEPA 5 (Noise and vibration abatement)</u>	Based on the current CEPA class
<u>CEPA 6 (Protection of biodiversity and landscapes)</u>	It would include also wild fauna and flora management (currently in CReMA 12)
<u>CEPA 7 (Protection against radiation)</u>	Based on the current CEPA class
<u>CEPA 8 (Environmental research and development)</u>	Based on the current CEPA class
<u>CEPA 9 (Other environmental protection activities)</u>	Based on the current CEPA class
<i><u>PART B: Resource Management</u></i>	
<u>CReMA 10 (Water management)</u> <ul style="list-style-type: none"> • 10.1 Reduction of the intake of water resources • 10.2 Water reuse and savings, reduction of water losses and leaks • 10.3 Replenishment of water resources • 10.4 Measurement, control, laboratories and the like related to water resources • 10.5 Other activities for the management of water resources 	Consensus in the TF
<u>CReMA 11 (Sustainable forest management – natural and cultivated forests)</u> <ul style="list-style-type: none"> • 11.1 Reduction of the intake of timber resources • 11.2 Reforestation and afforestation 	Consensus in the TF

<ul style="list-style-type: none"> • 11.3 Protection of forests against forest fires • 11.4 Measurement, control, laboratories and the like related to timber resources • 11.5 Others activities for the management of timber resources 	
<p><u>CReMA 13 (Management of energy resources)</u></p> <ul style="list-style-type: none"> • 13.1 Production of electricity and heat from renewable sources <ul style="list-style-type: none"> • Or : <ul style="list-style-type: none"> • 13.1 Production of electricity from renewable sources • 13.2 Production of heat from renewable sources • 13.3 Production of cogeneration from renewable sources • 13.2 Energy savings (electricity and heat) through in-process modifications • 13.3 Insulation activities • 13.4 Energy recovery • 13.5 Measurement, control, laboratories and the like related to energy saving • 13.6 Other activities 	<p>Consensus in the TF. The proposed breakdown for class 13.1 is in line with definitions in EU directive on renewable energy</p>
<p><u>CReMA 14 (Mineral management)</u></p> <ul style="list-style-type: none"> • 14.1 Savings through in-process modifications • 14.2 Production of substitute for minerals based materials • 14.3 Measurement, control, laboratories and the like related to the reduction of the use of minerals • 14.4 Other activities 	<p>Consensus in the TF</p>
<p><u>CReMA 15 (Material recovery)</u></p> <ul style="list-style-type: none"> • 15.1 wood and paper (old 11.2) <ul style="list-style-type: none"> • 15.1.1 from municipal wastes • 15.1.2 except from municipal wastes • 15.2 mineral (metal, glass,...) (old 14.2) <ul style="list-style-type: none"> • 15.2.1 from municipal wastes • 15.2.2 except from municipal wastes • 15.3 plastic <ul style="list-style-type: none"> • 15.3.1 from municipal wastes • 15.3.2 except from municipal wastes • 15.4 other hazardous <ul style="list-style-type: none"> • 15.4.1 from municipal wastes • 15.4.2 except from municipal wastes • 15.5 other non-hazardous <ul style="list-style-type: none"> • 15.5.1 from municipal wastes • 15.5.2 except from municipal wastes • 15.6 Other activities <ul style="list-style-type: none"> • 15.6.1 from municipal wastes • 15.6.2 except from municipal wastes 	<p>Consensus in the TF. The detailed split into “municipal” and “except for municipal” was presented as an alternative proposal. This would support the process of reconciliation of monetary accounts with waste statistics</p>
<p><u>CReMA 16 (Research and Other activities)</u></p> <ul style="list-style-type: none"> • 16.1 Research (old CReMA15) • 16.2 Environmental management (=ISBLM, general administration)(old CEA 16.1) <ul style="list-style-type: none"> • 16.2.1 General administration • 16.2.2 Other environmental management • 16.3 Education, information (old CEA 16.2) • 16.4 Other activities not specified (old CEA 16.3+16.4) 	<p>No consensus in the TF between the following alternatives: Option B) Consistent with CEPA <u>CReMA 16 (Research)</u> <u>CReMA 17 (Other)</u></p> <ul style="list-style-type: none"> • 17.1 Activities leading to indivisible expenditure • 17.2 Activities not elsewhere classified <p>Option C) R&D is captured within the CReMA classes <u>CReMA 16 (Other)</u></p> <ul style="list-style-type: none"> • 16.1 Activities leading to indivisible expenditure

	<ul style="list-style-type: none"> 16.2 Activities not elsewhere classified
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Table 2 presents the current draft for an integrated classification without distinction between EP and RM parts.

Table 2. Current draft integrated classification with no parts for EP and RM; this is a compilation of seven previous drafts

Proposed domain and subclasses	Mapping to current CEPA/CRema	State of discussion in the subgroups of the TF and outstanding issues
1) <u>Protection of ambient air and climate</u>	CEPA 1	Consensus in the TF. Considered important to keep unchanged. Products like electric vehicles in EGSS and investments to reduce air emissions (either end-of-pipe or integrated technologies) in EPEA are quite relevant.
2) <u>Wastewater management and activities aimed at reducing inland water input</u>	CEPA 2 + CRema 10	Consensus in the TF. Both original domains refers to the same element – water – therefore are linked: water.
3) <u>Protection and remediation of soil, groundwater, surface and marine water</u>	CEPA 4 (+ and explicit reference to the marine environment)	Consensus in the TF. The domain also includes the marine environment. Original ideas of merging CEPA 4 together with CEPA 6 and CRema 11A rejected. Original ideas of merging CEPA 4 with CEPA 2 and CRema 10 also rejected.
4) <u>Waste treatment, recovery and minimization of material use</u> <ul style="list-style-type: none"> 4.1 Waste management 4.2 Recycling/Recovery 4.3 Minimizing of the intake of forest, fossil and mineral resources 	4.1 = CEPA 3 4.2 = part of CRema 11B, 13C and 14 4.3 = other part of CRema 11B, 13C and 14	Under discussion – lack of consensus on subclasses 4.2 and 4.3
5) <u>Energy: Renewable energy and heat/energy saving and management</u>	CRema 13A and 13B	Consensus in the TF (acceptable majority)
6) <u>Protection, maintenance and management of inland and marine biodiversity, flora and fauna</u>	CEPA 6 + CRema 11A + CRema 12	Consensus on the scope; lack of consensus on the heading
7) <u>Protection against radiation (excluding external safety)</u>	CEPA 7	Consensus in the TF
8) <u>Research and development</u>	CEPA 8 and CRema 15	Under discussion – lack of consensus
9) <u>Other environmental protection and resources management activities</u>	CEPA 9 and CRema 16	Under discussion – lack of consensus
10) <u>Noise and vibration abatement</u>	CEPA 5	Consensus in the TF (acceptable majority)

Both proposals in Table 1 and Table 2 have their own merits. An obvious advantage of the proposal in Table 1 is much less effect on historical data series (and virtually none for CEPA); on the other hand, this proposal has inherited some of the challenges in identifying (and conceptually justifying) some of the boundary-line issues we are facing with current classifications (e.g. protection of water quality – CEPA 2 vs. protection of water quantity – CRema 10; research for EP vs. research for RM). The proposal in Table 2 seems to be better designed to address this issue; however, this proposal does not present breakdowns in a detail

that some users might require – energy being the most notable example. Both proposals appear to share “enough” with the current classification to allow for a relatively smooth transition for compilers (e.g. by combining some current classes into a single class of the new classification).

The Eurostat task force will finalise two parallel proposals to be presented at the Eurostat working group meeting in May 2020.

Question for the LG:

What are the relative merits (strengths and weaknesses) of the two current drafts for a reviewed classification of environmental activities (Tables 1 and 2)?

3.2. The treatment of energy storage in CReMA

During the revision of the CReMA explanatory notes, Eurostat realized that existing guidance does not explicitly mention pumped-storage hydropower stations (PSHS).⁵ These stations are devices to store energy. They do so by transferring water between two reservoirs at different elevations, using electricity to pump it up during periods of low electricity demand and producing electricity during periods of high demand. The question is whether this is an environmental activity, i.e. it is an activity with an environmental purpose, and if so where to classify it.

PSHS do not produce renewable energy and, at first sight, they are not related to environmental activities. PSHS do not fulfil either the European definition of production of renewable energy (Directive 2009/28/EC).⁶ Therefore, they would be out of CReMA 13A. On the other hand, PSHS balance out peaks in supply and demand of energy, and thus a more rational use of energy sources, by storing surplus energy. In this sense, PSHS may be considered an environmental economic activity within the scope of CReMA 13B (Heat/energy saving and management). CReMA 13B is defined as “*Activities aiming at the minimisation of the intake of non-renewable energy sources through in-process modifications as well as the minimisation of heat and energy losses and through energy savings; activities and products concerning measurement, control, laboratories and the like are also included as well as education, training and information and general administration activities linked to the management and saving of heat and energy*”.

In the Eurostat TF, a few countries argued that PSHS are merely profit-making devices (buying electricity at low prices in times of surplus to pump water up and selling it in times of peak demand at higher prices) rather than resource management instruments. It could be argued that economic gain is a feature of any business, including all those already considered as environmental economic activities as market activities. This debate relates, in fact, to the question of how to identify the primary (environmental) purpose, which is not fully resolved in the TF. For the time being, existing guidance proposes to use the technical nature of the

⁵ [EGSS handbook](#) and the [EGSS operation list of environmental activities and products](#)

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0028&qid=1566381865253&from=EN>

activity to determine primary environmental purpose regardless of the “true” primary motivation.⁷ However, we admit that this question needs to be carefully considered as our decision might have broader implications. While PSHS represents the most mature/traditional technology of energy storage and the greatest share of surplus electricity is stored in these installations⁸, other technologies are being developed, including (large) batteries, storage in hydrogen compressed air, molten ice, etc. A similar case are the ‘smart grids’, which are defined as “*an electricity network that can integrate in a cost efficient manner the behaviour and actions of all users connected to it, including generators, consumers and those that both generate and consume, in order to ensure an economically efficient and sustainable power system with low losses and high levels of quality, security of supply and safety*”.⁹ Smart grids represent a rather fundamental transformation of the existing energy networks with a high level of decentralisation and involvement of IT technologies for the transfer of real-time information, and all (most) consumers being also producers of energy/electricity.

Therefore, whether energy storage for balancing out peaks in energy surplus and energy demand is an environmental activity or not is important because:

- Energy storage will probably increase in the near future.
- Investments in those installations are, presumably, large.

As explained above, determining the ‘true’ primary purpose of energy storage developments is challenging. The discussion might also need to consider other conceptual and methodological questions, e.g.:

- If energy storage for the purpose of balancing out peaks in the supply of and demand for energy is an environmental activity, where/how to draw boundaries between different “energy storage systems”. (E.g., the AAA battery presumably does not serve as an energy storage to balance out peaks in surplus and demand)
- Some of these storage systems are an integral component of renewable energy production (e.g. batteries for solar panel for households), enabling further increase in the generation of energy from (intermittent) renewable sources.

Questions for the LG:

- *(For non-TF-members) Do you have experience recording PSHS or smart grids (or their components) in environmental activity accounts in your country? what is the conceptual explanation for your practice?*
- *Would you record them in CReMA 13A (renewable energy) or in CReMA 13B (energy storage)? Or do you think they are not within the scope of environmental accounts?*

⁷ According to the [EGSS handbook](#) “The principal basis for determining the environmental purpose of an activity in this handbook is the technical nature of the produced goods and services. It determines whether or not the activity is suitable to reduce the pressure on the environment, through prevention, reduction and elimination of pollution or through the reduction of the use of natural resources, whatever the stated motivations and presumed or real effects are.” (p. 13).

⁸ According to [World nuclear association](#) “*pumped storage comprised 95% of the world’s large-scale electricity storage in mid-2016*”.

⁹ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0202:FIN:EN:PDF>

- *Should we consider an ‘environmental energy storage’ as opposed to energy storage with no environmental benefit? And how can we define it?*

3.3. Energetic refurbishment of buildings and the construction of low-energy-consumption and passive buildings

The European list of environmental goods and services for EGSS accounts includes “*low energy consumption and passive buildings and energetic refurbishment of existing buildings*” as well as the environmental activity “*constructing low energy consumption and passive buildings and energetic refurbishment of existing buildings*”.¹⁰ However, there are signs that European countries do not have the same coverage for those products and activities in their EGSS accounts.

There are two aspects: one is energetic refurbishment of existing buildings and another one is the construction of new energy-efficient buildings. Eurostat has written about them in the last months to the TF and the Eurostat working group.

As regards energetic refurbishment, Eurostat proposed to record all energetic refurbishment activities (irrespective of the building’s classification in the national labelling schemes prior to and following the energetic refurbishment) at basic prices in NACE F and CReMA 13B.

As regards the newly constructed energy-efficient buildings, Eurostat proposed to identify relevant buildings as those classified as ‘nearly zero-energy’ in the national labelling schemes following Directive 2010/31/EU on the energy performance of buildings¹¹ and report the total value of newly constructed energy-efficient buildings (at basic prices), as stated in the [EGSS handbook](#), in NACE F and CReMA 13B.

These proposals triggered considerable debate in the Eurostat working group. Countries agreed to report the full cost of energetic refurbishment, but for newly constructed energy-efficient buildings there are diverging views as to whether report the whole building cost or only the costs related to energy efficiency, i.e. the extra costs corresponding to the secondary RM purpose.

Besides this conceptual question, there are technical/practical questions that need to be addressed:

- How to identify energetic refurbishment from other refurbishment activities?
- After 2018/2020 public/all newly constructed buildings in the EU should be energy efficient to comply with the nearly-zero efficiency standard of Directive 2010/31/EU. How to report for those reference years, when virtually all construction activity (NACE 41) would be considered in EGSS accounts?

¹⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015R2174>

¹¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0031&from=EN>. The directive provides a framework for the energy certification of buildings and the implementation of national plans for increasing the number of so-called ‘nearly zero-energy buildings’ – defined as buildings that consume nearly zero or a very low amount of energy, which is to be covered to a very significant extent by renewable sources “produced on-site or nearby”. Article 9 of the Directive obliges Member States to ensure that: (1) after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings; (2) by 31 December 2020, all new buildings are nearly zero-energy buildings.

- As an exception to the convention of reporting the full cost of adapted goods in EGSS and to avoid over-reporting on the construction of new energy-efficient buildings, would it be feasible to apply a generic factor representing the cost share related to energy efficiency in the overall construction costs of new energy-efficient buildings?¹²

Questions for the LG:

- *(For non-TF-members) What is your practice on the reporting on the energetic refurbishment and construction of energy-efficient buildings for monetary environmental accounts?*
- *(For non-TF-members) What is your view on the issues raised in the bullet points above, currently under discussion by the TF?*

4. Next steps

The next Eurostat TF meeting is scheduled for 10-11 October 2019. It aims to advance both on the short-term objective (revised explanatory notes about energy-efficient buildings, distinction between materials recovery and waste management, substitution of materials, the treatment of pumped-storage hydropower stations and the scope of the management of forest resources) and long-term objective (design of the future integrated classification). The TF will report to the Eurostat working group in May 2020. The goal is to finalise the explanatory notes in time for the 2020 EGSS and EPEA data collections in Europe, which take place in the second half of 2020. The discussion about the integrated classification of environmental activities may continue, as there is more time. The London Group and the UNCEEA remain associated. If the ultimate goal is to establish an international classification, it will be necessary to get endorsement by the UN expert group on classifications in its late 2021 meeting and approval by the UN Statistical Commission in early 2022.

¹² A preliminary assessment suggests some 15-40% of construction costs may be related to energy efficiency, depending on whether larger office buildings or small family houses are considered (<https://www.bauratgeber-deutschland.de/hausbau/hausbau-kosten/>; <https://www.engr.psu.edu/ae/thesis/portfolios/2014/bwm5151/Tech%20Reports/Technical%20Report%201%20Revision%202.pdf>).