

HORIZON  
2020

# Bioenergy Villages (BioVill) - Increasing the Market Uptake of Sustainable Bioenergy

## Results


### Project Information

#### BioVill

Grant agreement ID: 691661

[Project website](#) 

#### DOI

[10.3030/691661](https://doi.org/10.3030/691661) 

Project closed

#### EC signature date

14 December 2015

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1 March 2016

#### End date

28 February 2019

#### Funded under

SOCIETAL CHALLENGES - Secure, clean and efficient energy

#### Total cost

€ 1 998 917,50


#### EU contribution

€ 1 998 917,50

#### Coordinated by


DEUTSCHE GESELLSCHAFT  
FÜR INTERNATIONALE  
ZUSAMMENARBEIT (GIZ) GMBH  
 Germany

This project is featured in...



## Bringing down the barriers to the uptake of clean energy solutions in Europe

CORDIS provides links to public deliverables and publications of HORIZON projects.

Links to deliverables and publications from FP7 projects, as well as links to some specific result types such as dataset and software, are dynamically retrieved from [OpenAIRE](#) .

## Deliverables

### Documents, reports (32)

#### [Minutes of the working group meetings](#)

This report will be based on a compilation of the proceedings of working group meetings performed on site (1-3 pages per working group meeting in English language, focussing on - Number and peer groups of participants - Subjects dealt with - Results achieved and recommendations given, respectively decisions taken if the working group has got authority from the local council to take any decisions on specific issues.

#### [Report on the social and environmental impacts for the target villages](#)

Summarizing for each of the 5 target villages: - Additional useful energy (heat and power) supplied from bioenergy - Share (and its increase) of bioenergy in local energy supply - Local value creation resulting from the production, processing, dissemination, and use of bioenergy (final consumer price of the delivered bioenergy materials; revenues of heat suppliers and power generators) - Jobs created or stabilized along the local and regional bioenergy value chain - Savings achieved by final energy consumers - Tons of CO2 emissions actually (or potentially) avoided per year.

#### [Best practice report on bioenergy villages in Europe](#)

Presentation and evaluation of a total of at least 20 best practice examples of bioenergy villages from different countries in Europe, including a review of

performed activities and achieved progress in developing the local bioenergy market. For each of the analysed best practice examples, or for groups of projects which are found to be similar in some respect, the report will among other things present the major lessons learnt as well as conclusions and recommendations, if any, for the replication and adaptation of applied concepts with regard to: - Mobilization and awareness creation of local decision makers (mayor, council...) - Local stakeholder involvement (information, awareness raising, consensus building ...) - Public participation (individuals, peer groups, civil society) e.g. in information sharing, awareness raising, capacity development, local bioenergy development planning, financing and implementation of investments, using energy provided from bioenergy sources, sharing in the economic return of bioenergy investments, etc. - Selection and adaptation of appropriate technologies - Development and planning of technical systems for the use of bioenergy, including local infrastructure and logistics. - Establishment and development of local value chains. - Impact on local economic and social development. An executive summary will present in a very concise way (1-5 pages max.) the major lessons learnt, conclusions and recommendations which could serve as the starting point for the further dissemination and replication of the concept of bioenergy villages in the partner countries. The report will be compiled in English and published in electronic format (.pdf), with the executive summary translated to the partner languages

#### [Report on the promotion of small-scale heating systems](#)

Reporting for each of the target villages on: - Information and awareness building measures (Information events, press releases, local media campaigns, presentations to peer groups etc.) which have been performed to promote small-scale heating systems using bioenergy such as e.g. quality-controlled fire wood, wood pellets, wood chips, or wood or straw briquettes. - Summary of user feedback collected during these activities - Number of newly installed heating systems using bioenergy

#### [Proceedings of the joint networking workshop](#)

- List of speakers - Number and list of participants, as far as they agreed to be presented on the list - Agenda - Summary of presentations and conclusions from discussions performed

#### [Tool and report on the economics of the bioenergy projects in the villages](#)

Report providing a detailed documentation of the bioenergy concepts and their specific components (technologies, infrastructure, business models, financing, operation, maintenance etc.) including for the entire concept, as well as for each major component: - Detailed specification of targets agreed by the local actors and results actually achieved. - Description of problems encountered in due course of concept implementation if any, and solutions found. - Assessment of risks that occurred and of risk mitigation strategies applied on site. All errors

made, if any, and the major lessons learnt in due course of local activities will be documented for each of the target villages in a way which may help others to avoid repeating the same errors, and benefiting from the experience made in the target villages.

[Guideline on financing options, contracts, ownership models, and business models for bioenergy villages](#)

Guidelines including: - Basic criteria for the assessment of economic and technical feasibility of bioenergy village concepts under specific local conditions - Checklists for the development of adapted local technology and infrastructure concepts for heat supply and CHP based on bioenergy. - Various (at least 3) business models (e.g. shared ownership, commercial local energy service company ESCO/SME, private investment) for the planning, implementation, development and sustainable operation of local value chains from primary energy production to final energy consumption based on bioenergy as the primary energy source, including for each of these business models - Financial and technical model calculations - Contract templates - Templates of governance rules (in particular important for shared ownership models)

[Documentation of Memorandums of Understanding \(MoU\) with the target villages](#)

A report including the MoU signed for each of the target villages (scanned originals) with English translation of those MoUs which in the signed original were not written in English, or if such MoU has not been signed at the due date of the report, of the status of discussion, negotiation, consensus building and decision making on site, including major barriers encountered during the process of preparing the MoU and, if possible, measures taken or planned to overcome these barriers.

[5 Reports on national framework conditions in the target countries](#)

The deliverable will include a report section on each of the 5 partner countries, focusing on: - relevant legislations, regulations etc. in place in the country supporting the development of local markets for bioenergy - legislative and regulatory barriers impeding the development of local markets for bioenergy in the country - available financial subsidies/grants/loans dedicated to the financing of investments in the development and use of bioenergy resources at the regional and local level.

[Compiled report on all training courses on bioenergy projects for the financial sector](#)

Report providing the documentation and results of at least 1 (one-day) training course per target village (in total at least 5 courses), including: - Curriculum - Trainers and other resource persons - List of participants – as far as those agreed upon prior informed written consent - Evaluation report - Participants feed-back (conclusions and recommendations for future seminars)

### [Results-oriented Final Report](#)

Report summarising the project's results and outcomes for publication.

### [5 Individual concepts of the bioenergy villages](#)

This deliverable will include 5 Reports, one on each of the target villages. Concept reports summarizing the finally implemented bioenergy village concepts in the target villages, for each of the 5 target villages.

### [Press release about local support schemes for small biomass heating systems](#)

Report documenting for each of the 5 target villages at least one joint press release (in total at least 5 press releases) addressing local media, jointly prepared by the local partner and the supporting body (authority) on site.

### [5 Reports on strategic bioenergy goals for the target villages](#)

The deliverable will include 5 reports, one on each of the target villages. For each of the target villages: type of bioenergies to be developed, technologies to be introduced, share in energy supply to be achieved within a defined period of time.

### [Report on the dialogue process with local, regional and national authorities](#)

For each partner country: Involved authorities, their attitude towards the development of local bioenergy markets (supporting, impeding, indifferent), their major concerns regarding the development of local bioenergy markets, conclusions and recommendations given by them, etc.

### [Report on study tour 2](#)

Short report summarizing: - Dates and venues visited during the study tour. - List of participants - List of key partners met on site (individuals or institutions) - Major results of the major study tour events - Results of the participants' evaluation of lessons learnt during the study tour - Conclusions and recommendations for the next study tour (recommended subjects, destinations, contacts...)

### [Individual reports per target country partner on the outreach and knowledge sharing to other villages](#)

Report providing a total of at least 10 additional villages asking for information, advice, or assistance in the replication and adaptation of BioVill concept, and of the measures taken by partners to provide this information, advice, and assistance upon the local stakeholders' request.

### [5 Reports on regional and local framework conditions in the target regions/villages](#)

The deliverable will include 5 reports, one on each of the 5 target municipalities analysing at both the local and regional level supporting as well as adverse framework conditions with regard to, for example: - administrative structures - demographic development (positive or negative migration balance, number and typical sizes of households) - population profiles (age distribution, income levels,



education etc. if, and as far as available from official statistics without the performance of new surveys in due course of the project – see data protection policy of the project ...) - local and regional economic development (growth or recession, sector mix and sector-specific trends) - local value chains (or elements of these) for the production, processing, distribution, and use of bioenergy resources. - local infrastructure (e.g. heating centrals, major consumers, grid access etc.) - etc.

#### [Summary of business models for the target villages](#)

Summary of the results presented in Deliverable D37 (= D5.5) for public Dissemination.

#### [Report on the information days](#)

This report will summarise the proceedings of each of at least 20 local information days (2-6 hours duration per event) performed in due course of the project, focussing in particular on: - Resource persons and institutions involved in each of the events - Program and subjects presented during each of these events - Numbers of public audience and/or specific peer groups addressed - Feedback collected from visitors - Conclusions and recommendations on the planning and implementation of further information and awareness building events at the local level

#### [Presentations to national and European networks and programs](#)

Report providing complete printouts of 3 standard .ppt presentations (in English language) with 15-25 slides each, which have compiled at different stages of project implementation, which are presenting (1) the BioVill project and objectives and approach, (2) the 5 partner villages and their main objectives, and (3) the results achieved by the project. The report will also include a summary list of events, networks and programs etc. to which each of these presentations (in standard version, or in adaptations was given by the partners. This report will only be published in electronic format and in English.

#### [Report on involvement of best practice key actors](#)

Presentation of the proceedings and results of the missions performed by key actors involved in already existing bioenergy villages (best practices) for the sharing of the know-how and experience with stakeholders interested or involved in the initiation and implementation of new bioenergy villages in the partner countries. On each mission, the report will provide concise proceedings on 1-3 pages protocol, providing: - Scope of the mission - Destinations (countries, regions, villages) - Key stakeholder s met on site - Conclusions and recommendations given by the actor as the main results of the mission.

#### [International Conference with summary on the website](#)

Documentation (published in electronic format; .pdf) of the performed international conference (minimum 80-100 participants), including: - Venue and date - Conference programme - List of speakers - List of participants (upon the participants prior informed written consent in publication of their names, institutions, and/or email addresses). - Major results and lessons learnt from presentations and discussions - Evaluation of feed-back collected from participants The documentation will be in English language. A summary of this documentation will be published on the website for free download in English and in all partner languages.

#### [Report on study tour 3](#)

Short report summarizing: - Dates and venues visited during the study tour. - List of participants - List of key partners met on site (individuals or institutions) - Major results of the major study tour events - Results of the participants' evaluation of lessons learnt during the study tour

#### [Compiled report on all training courses on financing, contracts and business models](#)

Report providing the documentation and results of at least 1 (one-day) training course per target village (in total at least 5 courses), including: - Curriculum - Trainers and other resource persons - List of participants – as far as those agreed upon prior informed written consent - Evaluation report - Participants feed-back (conclusions and recommendations for future seminars)

#### [5 Techno-economical assessment reports of bioenergy value chains and their potentials in the target villages](#)

The deliverable will include 5 reports, one on each of the target villages. Including for each of the five target villages: - Local bioenergy supply potentials, types and distribution of potential bioenergysources - Existing capacities for the production, harvesting, processing, distribution and use of bioenergy - Existing demand potentials and scenarios for the supply of these demands from bioenergy sources - Appropriate technical solutions - Recommended technically and economically feasible infrastructure development - Awareness building and marketing measures recommended - etc.

#### [Proceedings of the 5 national conferences](#)

Documentation of at least one national BioVill Conference in each of the partner countries (in total at least 5 national conferences), including for each of these conferences: - Venue and date - Conference programmes - List of speakers - List of participants (upon the participants prior informed written consent in publication of their names, institutions, and/or email addresses). - Major results and lessons learnt from presentations and discussions - Evaluation of feed-back collected from participants

#### [Report on helpdesk activities](#)

This report will report for each of the helpdesks in a concise summary form on: - Number of enquiries accepted during the reporting period (per month, per year). - Frequently asked questions and relevant answers. - Received user feed-back and the quality and effectiveness of the provided helpdesk services (will be collected at the end of each communication performed in response of an accepted enquiry). This report will in no case unveil any personal data of anybody making use of the helpdesk services.

#### [5 Reports on the opportunities to set-up biomass based CHP plants and small district heating networks in the target villages](#)

The deliverable will include 5 reports, one on each of the target villages. For each of the 5 target villages: - Potential solutions, if any, for the pooling of heat demand, and necessary infrastructure development measures (e.g. establishment of new or fuel-switch of existing heating centrals, construction of new or use of existing heating pipes etc.) - Pre-feasibility statements on economic and technical viability, taking into consideration actual cost and saving potentials from the local energy consumer points of view.

#### [Report on the surveys](#)

Anonymous evaluation of the survey (without presenting any personal data of interviewees) summarizing the major findings at two levels. - Results of surveys per country - Overall results of the performed survey For each country it will provide: - Adapted questionnaire - Number of participants and the shares of peer groups represented - Statistical evaluation of received feed-back - Conclusions and recommendations resulting from the received results. The overall evaluation will summarize and generalize the results presented in the country-specific reports.

#### [Report on study tour 1](#)

Short report summarizing: - Dates and venues visited during the study tour. - List of participants - List of key partners met on site (individuals or institutions) - Major results of the major study tour events - Results of the participants' evaluation of lessons learnt during the study tour - Conclusions and recommendations for the next study tour (recommended subjects, destinations, contacts...)

#### [Information material for citizens of the target villages](#)

This will include at least one flyer on the concept of bioenergy villages, their needs and potentials, including specific information on the benefits the implementation of these concepts provides for the citizens of participating villages. This flyer will in close cooperation with key stakeholders in potential target villages be developed in English and translated to all partner languages.



## Websites, patent fillings, videos etc. (2)

### [Project website](#)

A website containing language-specific sections of all major web contents in English, Croatian, Serbian, Macedonian, Slovenian and Romanian language. It will serve as knowledge sharing platform offering all deliverables produced in the project for download. Evidence of delivery will be given by means of a report documenting the initial web content in English language. This report will be uploaded in electronic format as D7.1.

### [Final report on Webinars](#)

Documentation of at least 1 webinar per country (conducted in the local language; a total of at least 5 webinars), specifying for: - Date of the webinar - Subjects and agenda of the webinar - Number of logged-in participants - List of names, institutions, and email-addresses of logged-in participants – as far as they give their prior written informed consent to the publication of these data - Summary of proceedings of the webinar, of major questions raised by participants, and of the lessons jointly learnt - Evaluation of collected user feedback. The report will be submitted to the INEA only in English and in electronic format (.pdf).

## Other (2)

### [Media clippings of articles/interviews published by partners in technical magazines and media](#)

A report including all press clippings and other media reports promoting the project and its results, which have been collated by the partners.

### [Animation Video](#)

2-3 minutes animation video for potential bio-energy village operators and actors along the supply chain (available in English and in translations to the partner language) for free download from the website and for dissemination via YouTube. The deliverable report will be an annotated series of screen shots showing the main elements of the storyboard of the English version.

## Publications

## Conference proceedings (3)

[The Creation of Bioenergy Villages in Southeastern Europe - Results from the Biovill Project in Macedonia and Slovenia](#) 

**Author(s):** Rutz, D., Janssen, R., Adler, J., Markovska, N., Bozhikaliev, V., Sazdovski, I., Krajnc, N., Kocjan, D., Hafner, P.

**Published in:** Proceedings of the 26th European Biomass Conference and Exhibition, Issue 26th European Biomass Conference and Exhibition, 2018, Page(s) 1359 - 1364, ISBN 978-88-89407-18-9

**Publisher:** ETA Florence

**DOI:** 10.5071/26theubce2018-4av.1.18

Business models for bioenergy villages: A compilation of main components of business models as part of the BIOVILL project

**Author(s):** Konstanze Stein

**Published in:** 5th World Bioenergy Congress and Expo, Issue 7:4(Suppl), 2017, Page(s) 47

**Publisher:** J Fundam Renewable Energy Appl 2017

[Bioenergy Villages. Establishing Regional Bioenergy Concepts in Southeast Europe to Speed-up the Market Uptake of Sustainable Bioenergy](#) 

**Author(s):** Adler, J., Harter, F., Rutz, D., Stein, K., Höher, M., Krizmanić, M., Markovska, N., Cosnita, D.-A., Krajnc, N., Gluščević, M.

**Published in:** EUBCE 2017 Online Conference Proceedings, Issue Annually, 2017, Page(s) 1627 - 1633, ISBN 978-88-89407-17-2

**Publisher:** ETA-Florence Renewable Energies

**DOI:** 10.5071/25thEUBCE2017-4AV.1.52

## Other (1)


Techno-Economic Assessment of Bioenergy Projects for SEE Countries

**Author(s):** M. Höher, H. Tretter, S. Athavale, Austrian Energy Agency

**Published in:** Biobased Future. Mitteilungsblatt über Biomasse für Energie und Industrie in einer nachhaltigen Wirtschaft, Issue Number 9 - April 2018, 2018, Page(s) 15

**Publisher:** BIOENERGY 2020+ GmbH

## Peer reviewed articles (1)

[Techno-economic, Social and Environmental Assessment of Biomass Based District Heating in a Bioenergy Village](#) 

**Author(s):** Vasil Bozhikaliev, Ilija Sazdovski, Jens Adler, Natasa Markovska  
**Published in:** Journal of Sustainable Development of Energy, Water and Environment Systems, Issue Quarterly, 2019, ISSN 1848-9257  
**Publisher:** SDEWES  
**DOI:** 10.13044/j.sdewes.d7.0257

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