

Interreg



Italia-Österreich

European Regional Development Fund

CLEANSTONE

Kick-off meeting
17 December 2019 - Udine (UD)

Recupero e valorizzazione degli scarti di lavorazione lapidea per la
sostenibilità ambientale

Rückgewinnung und Aufwertung von Steinaufbereitungsabfällen für
ökologische Nachhaltigkeit

Programme

Tuesday, 17 December 2019

- | | |
|---------------|--|
| 10:00 - 10:10 | Welcome to participants by chairman and local host |
| 10:10 - 11:00 | Description of the main administrative tasks of the consortium |
| 11:00 - 12:25 | Summary of the activities in each WP (presentations by Project Partners, PPs) |
| | 11:00 – 11:10 Short description of WPs by chairman |
| | 11:10 – 11:25 Presentation of individual activities UNIUD |
| | 11:25 – 11:40 Presentation of individual activities UNIPD |
| | 11:40 – 11:55 Presentation of individual activities FH KARNTEN |
| | 11:55 – 12:10 Presentation of individual activities CONF. VICENZA |
| | 12:10 – 12:25 Presentation of individual activities ECO |
| 12:25 - 13:00 | Organization of the technical activities (scheduling of the activities, including communication and dissemination tasks; first round of discussion on possible issues/criticalities) |
| 13:00 – 14:00 | Lunch Break |
| 14:00 – 18:00 | Second round of discussion (on specific issues related to scheduling of the activities and/or foreseen issues/criticalities) with coffee break |
| 18:00 | Meeting Closure |

The Consortium

Role	Partner
LP	University of Udine
PP1	University of Padova
PP2	Fachhochschule Kärnten
PP3	Confartigianato Vicenza
PP4	E.C.O. Institut für Ökologie

Associate Partners

Verona Stone District SCARL
MINERAL ABBAU GmbH
Consorzio Pietra Piasentina

STAGE 1

"The safe use of explosives on site is one of the key priorities here!"

STAGE 2

EGEO
GEO
LARC

STAGE 3

- BLAE
- BLAS
- QCT

STAGE 4

STAGE 8

STAGE 6

OPT

STAGE 5a

OPT QCT

STAGE 5

and

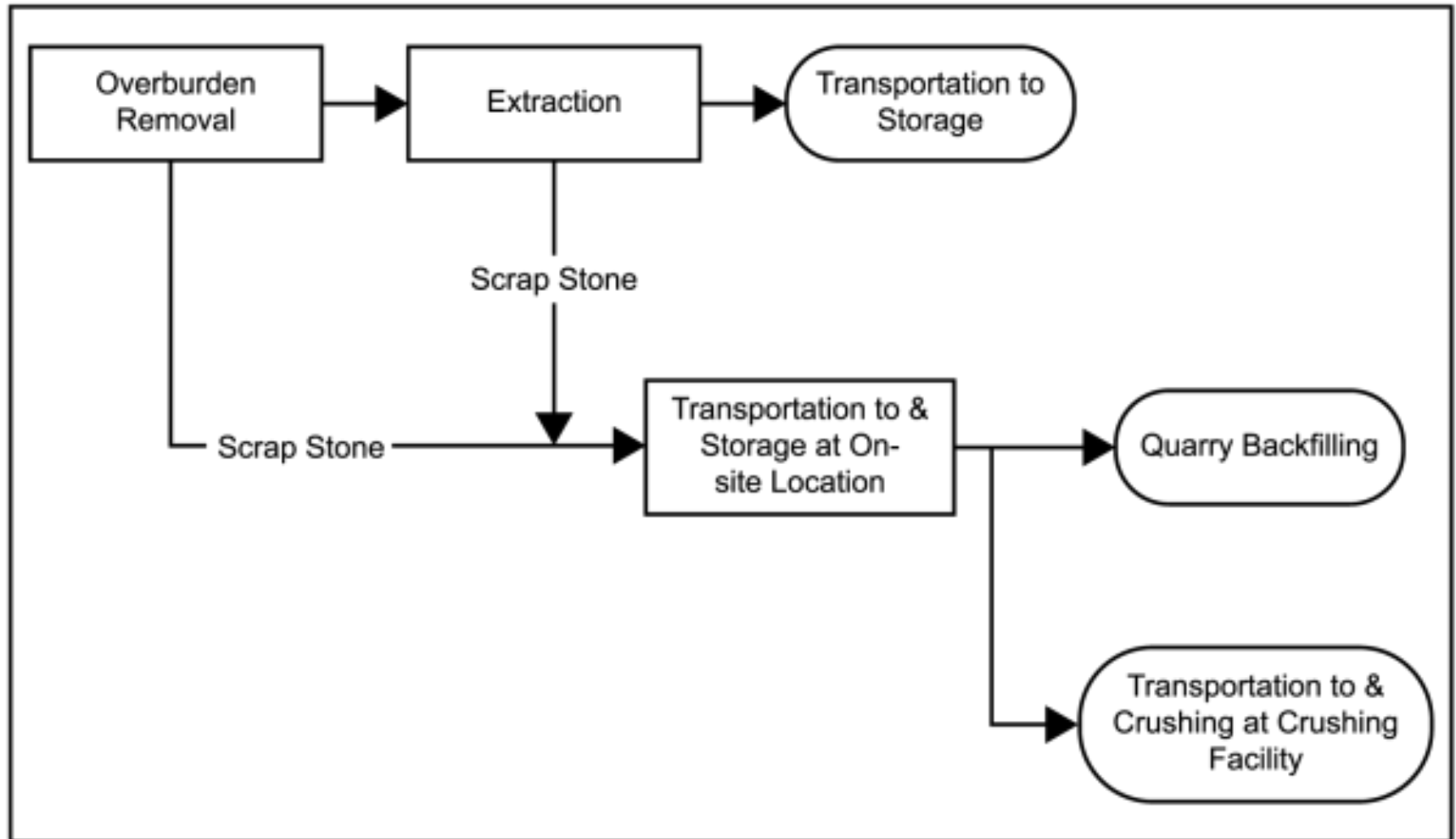
STAGE 7

CMT
QCT

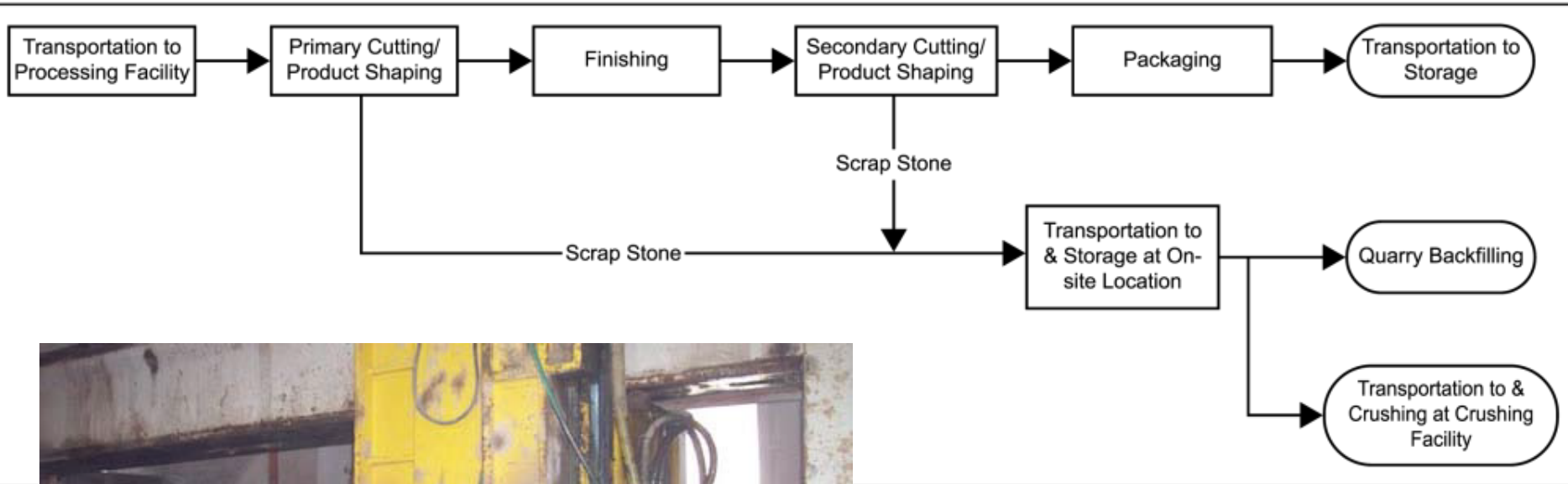
JOB ROLES
KEY

ADM Administrators	CMT Commercial Team	GEO Geologists	LARC Landscape Architect	PE Processing Engineers	QS Quantity Surveyor
BLAE Blasting Engineer	EGEO Engineering Geologist	HR Human Resources	LMC Maintenance Engineers	OPT Operators	STM Site Manager
BLAS Blasting Supervisor	ENG Engineers	HSE Health and Safety	PFM Plant Fleet Manager	QCT Quality Control Technician	TRN Training and Competency

Extraction process

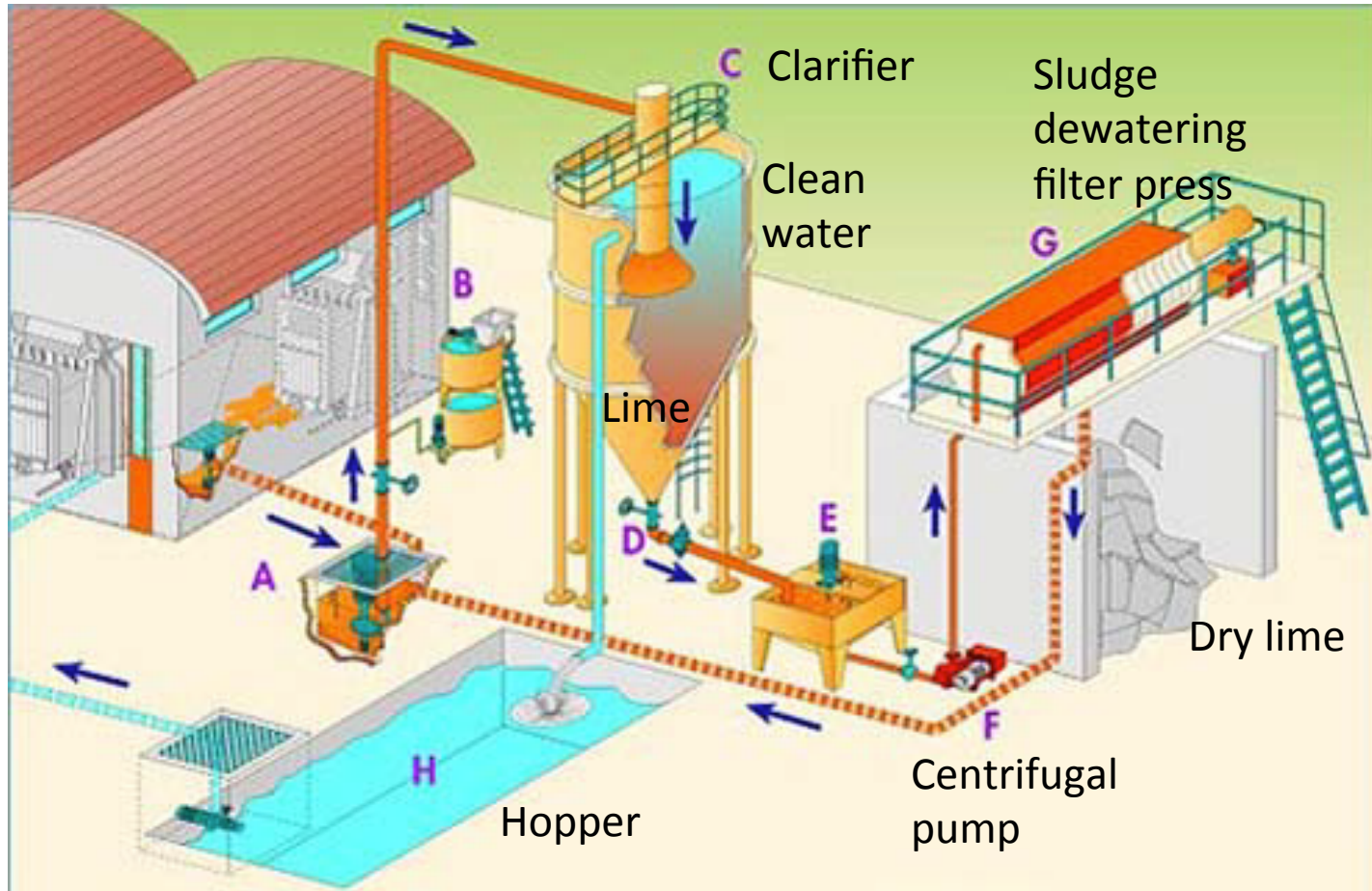


Cutting process



Water cycle

Cutting



- A – Collection sump B – Water + flocculant mixture
D – Waste-water discharge E – Homogenisation tank
G – Press filter (extracts residual water from lime)

Summary of Work Packages

WP	Description	Start date	End date	
WP1	Project Management	01 NOV 2019 (M1)	31 OCT 2021 (M24)	
WP2	Communication	01 NOV 2019 (M1)	31 OCT 2021 (M24)	
WP3	Development of innovative protocols for assessing and reducing the environmental impact of stone processing	01 JAN 2020 (M3)	30 JUN 2021 (M24)	
WP4	Identification/development of new best practices for the recovery of waste as secondary raw material	01 APR 2020 (M3)	31 OCT 2021 (M24)	

Summary of Milestones

WP2 Communication

Milestone	Description	Due date
M2.1	Communication plan	30 APR 2020 (M6)
M2.2	Logo and graphic identity	31 DEC 2019 (M2)
M2.3	Website	30 JUN 2020 (M8)
M2.4	Promotional and informative material	30 JUN 2020 (M8)
M2.5	Final conference of the project	31 OCT 2021 (M24)

Note: No milestones for WP1

Summary of Milestones

WP3 Development of innovative protocols...

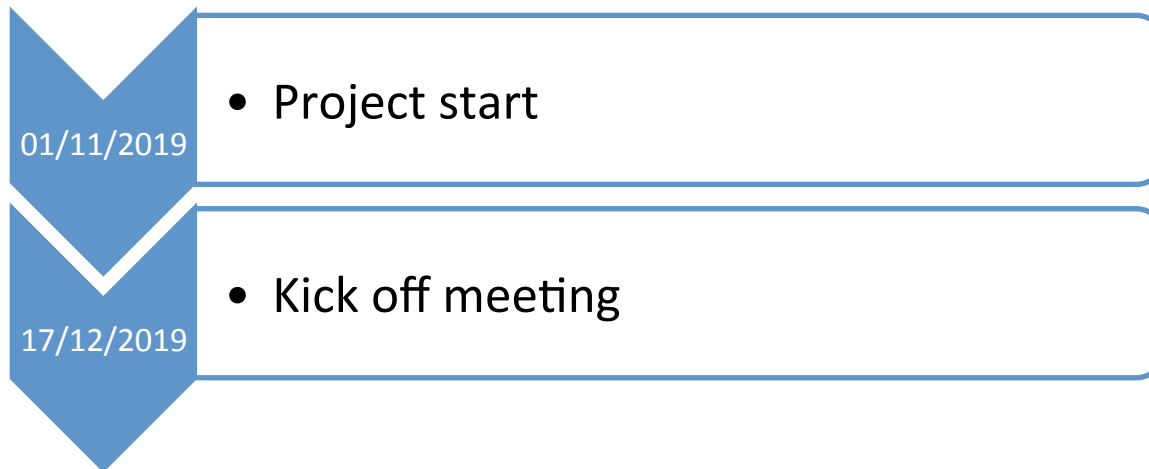
Milestone	Description	Due date
M3.1	Development of numerical models	30 JUN 2020 (M8)
M3.2	Analysis of local legislation (Italy/Austria) for quarry's waste disposal	31 DEC 2020 (M14)
M3.3	Environmental impact assessment of dispersion of quarry's dusts	31 DEC 2020 (M14)
M3.4	Identification of protocols/best practices to minimize the environmental impact of quarrying activities	31 DEC 2020 (M14)
M3.5	Environmental analysis of stone cutting process	30 JUN 2021 (M20)

Summary of Milestones

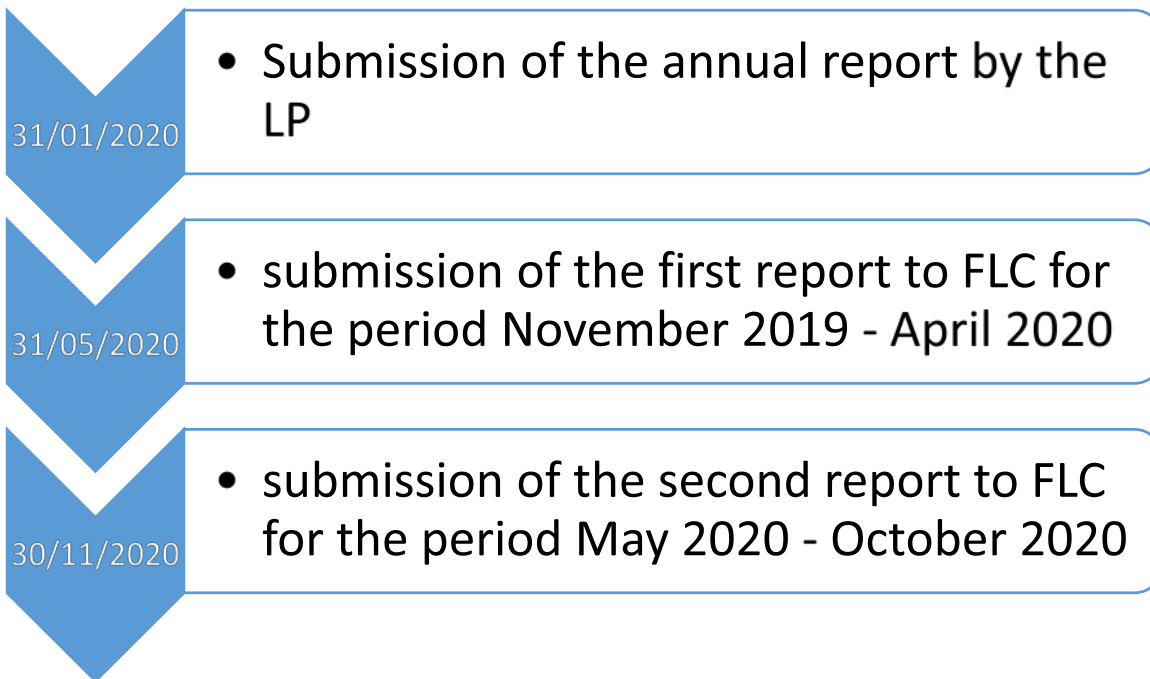
WP4 Identification/development of new best practices...

Milestone	Description	Due date
M4.1	Identification of testing protocols for the physico/chemical characterization of waste material aimed at evaluating the recycling potential	31 DEC 2020 (M14)
M4.2	Physico/chemical characterization of waste material	30 JUN 2021 (M20)
M4.3	Identification of recycling options	30 SEP 2021 (M23)
M3.4	Economical assessment and ranking of recycling options	31 OCT 2021 (M24)

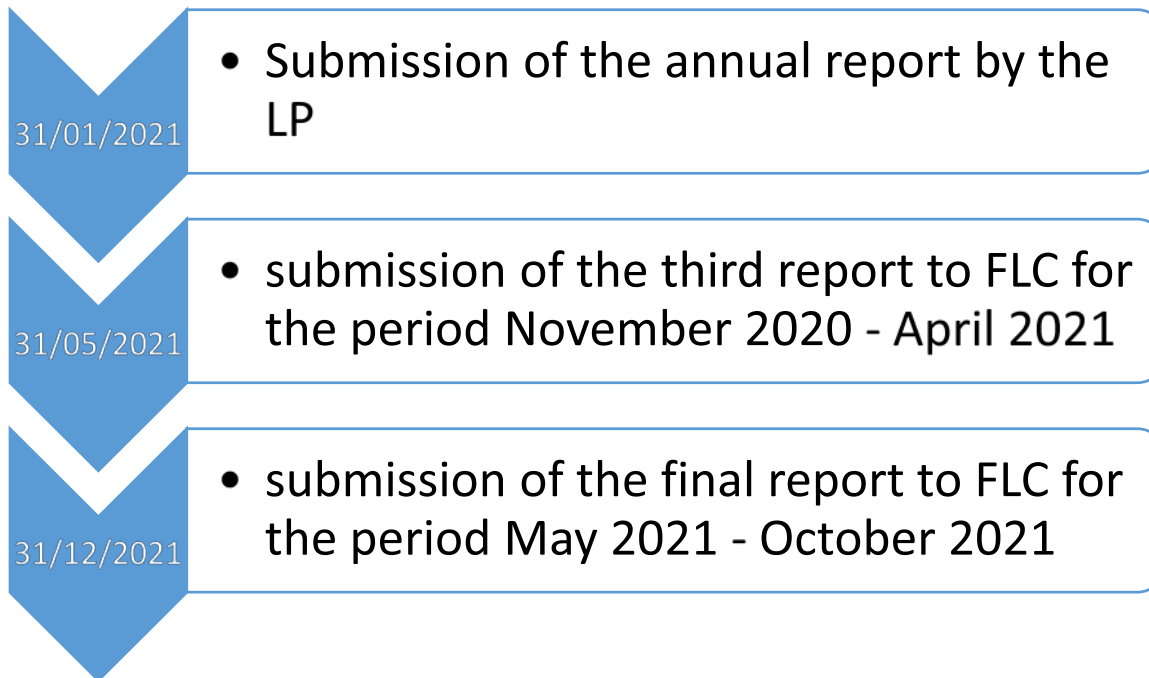
Timetable for 2019



Timetable for 2020



Timetable for 2021



Presentations of individual activities

UNIUD's research activities

1. Analysis of previous EU projects in the stone sector

Identify main results of previous projects and partners involved to

1.1. characterize the background information available

1.2. identify wider audience for future dissemination of project results

2005-2008: PRO-STONE, Eco-efficient and high productive stone processing by multifunctional materials

2008-2010: CLEAN CUT Development of a clean and energy efficient cutting system for the 12 millions tons of granite blocks yearly processed in enlarged EU

2010-2012: XSTONE (Development of novel stone sawing equipment to valorise undersized and irregular stone blocks for a more rational use of natural stone quarry resources)

2012-2014: HYDRASPLIT, Development of an environmentally friendly and cost-effective modular hydraulic rock-splitter system for efficiently breaking large rocks for an improved use in stone quarry extraction

2012-2015: ROOFOF ROCK Limestone as the common denominator of natural and cultural heritage along the karstified part of the Adriatic coast

UNIUD's research activities

2. Screening of stone industries to be directly involved in the project

2.1 Design a survey to collect preliminary information about stone industries on the following subjects:

- i. type of stone processing (mining and quarrying, cutting, finishing)
- ii. stone material
- iii. efficiency of process
- iv. environmental awareness

2.2 Select a subset of stone industries for detailed process analysis

2.3 Analysis of waste disposal and resources recovery practices already in use

2.4 Identification/dissemination of best practices

3. Screening of practices in use for environmental impact assessment and mitigation

3.1 Collect data to quantify environmental impact of stone processing

3.2 Model the impact of dust release from quarries/stone processing facilities

3.3 Evaluate the effect of implementation of best practices

UNIUD's research activities

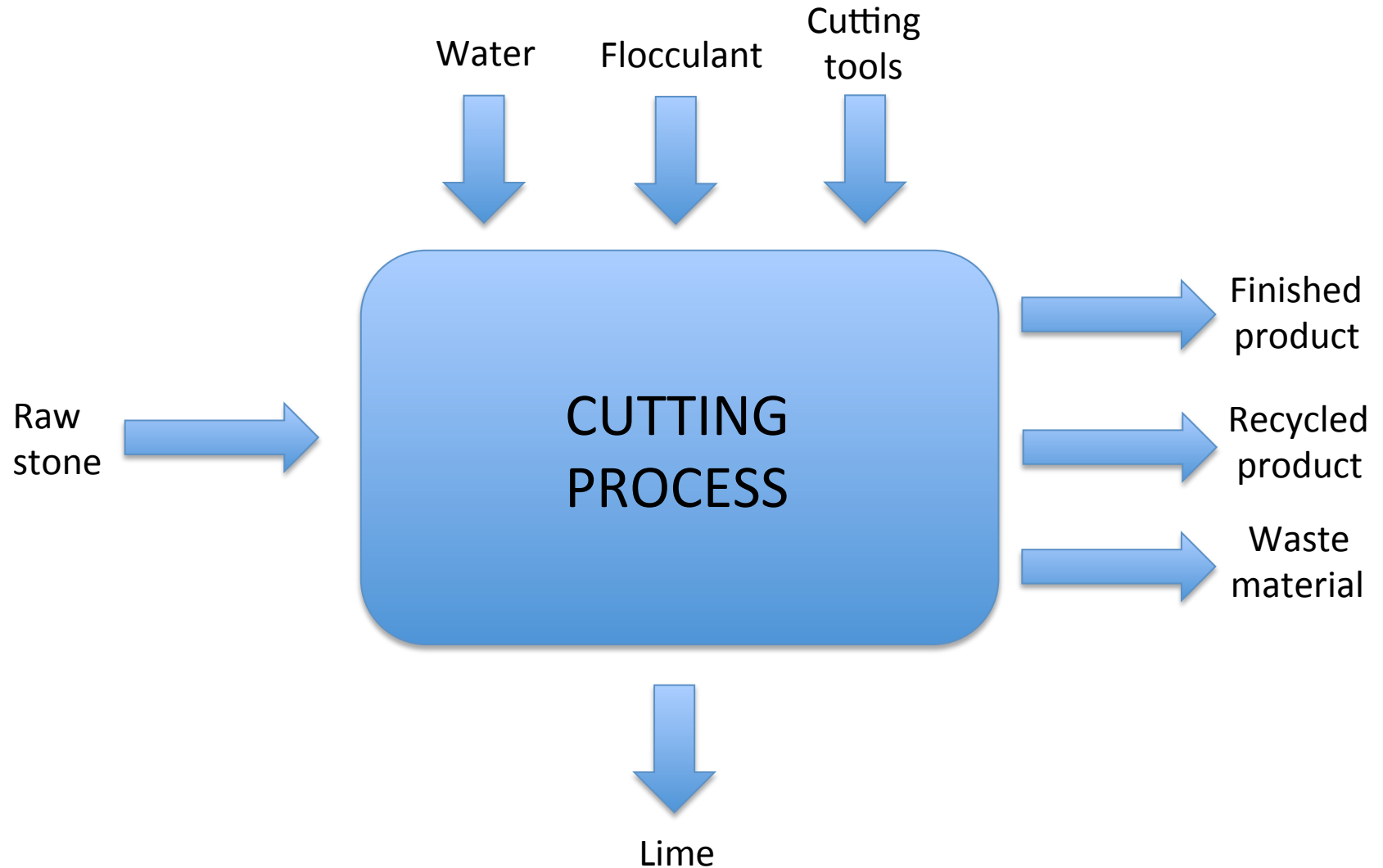
4. Identify/rank waste reuse alternatives

- 4.1 Characterization of waste: identify parameters to measure the intrinsic value of waste (chemical composition, particle size distribution, ...)
- 4.2 Identification of patterns for waste material reuse
- 4.3 Economical ranking of recycle/reuse alternatives

NOTE: Physico/chemical characterization of waste material based on

- scanning electron microscopy (micro-structural characterization)
- Rx crystallography (crystallographic characterization)
- dynamic light scattering (granulometric characterization)
- thermogravimetric analysis
- quantification of the fraction of fine grains (< 200 – 500 microns) composing the different types of stone waste

UNIUD's research activities



Organization of Activities

- **University of Udine** lead partner for all numerical simulation activities
- **University of Padova** lead partner for all mineralogical processing activities
- **FH Karnten** lead partner for all activities concerning construction material processing and conservation
- **Confartigianato Vicenza** lead partner for the exploitation strategy and for the networking activities
- **E.C.O.** lead partner for all activities concerned with evaluation of environmental impact of stone processing activities
- **Management Committee**

Organization of Technical Activities

1. Research activities

Items to be discussed:

2.1 Screening of stone industries

2.2 Prepare a survey to collect preliminary information

2.3 Analysis of waste disposal and resources recovery practices already in use

2.4 Collect data to quantify environmental impact of stone processing

2.5 Define suitable indicators (e.g. mass of produced lime / mass of cut stone) to quantify waste production and environmental impact

2.5.1 Engineering/process indicators

2.5.2 Ecological indicators

2.5.3 Legal factors

2.6 Others...

Organization of Technical Activities

2. Communication/dissemination activities

Items to be discussed:

2.1 Communication plan

- 2.1.1 Inform public administrations, consortia and industrial associations
- 2.1.2 Organize public information events and workshops
- 2.1.3 White paper (final outcome)

2.2 Logo

2.3 Website

2.4 Brochures/leaflets/posters

2.5 Media

2.6 Others...