

Advertised Project and/or Master's Thesis – Part 1 Focus on Geology

Potential analysis of available phosphate rock reserves and resources: A long term perspective

Why phosphorus

Phosphorus (P) is **essential** for **all life** on earth. Particularly for the **global food security**, as mineral **fertilizers** contribute approximately half of the global crop yield. As opposed to N and K, future primary **P supply is limited** to the mining of finite **phosphate rock (PR) deposits**.

Within the last decade we have seen bogus, but media-effective, studies suggesting a full depletion within this century. Thus, we see it as our **responsibility** to conduct **reliable** and **thorough scientific research**, based on an **accurate set of inventory data** (reserves as well as resources), as basis for a **sustainable phosphorus management**. More specifically, we want to **model cumulative availability curves** for PR as a **function of prices**.

Research framework

You will be part of a **highly motivated international team of scientists** as well as **experts from practice**. Within the “**Transdisciplinary laboratory for Sustainable Mineral Resources**” (Td-Lab SMR) you will be able learn as well as contribute to **state-of-the-art high impact scientific research** in the field of phosphorus, preparing you for an **academic** as well as an **industrial career**. Within the course of work, you will have the **chance to travel** internationally to relevant associations such as **USGS, BGR, or the BRGM**.

Task definition

- **Literature review** on existing reserve/resource reports on PR
- **Data acquisition, processing, and preparation**
- **Data unification and analytics**
- **Development** of an easily accessible and reliable **database** solution for all involved researchers

Supervision

Mohammed VI Polytechnic University:

- Prof. Dr. **Jean-Louis Bodinier**

OCP Group SA.:

- **Mohamed El Harrak**

Td Lab Krems:

- **Full team** - see QR code

Additional committed experts

- Prof. Dr. **F.-W. Wellmer** (former President of the BGR)
- Dr. **Amit Roy** (former President of the IFDC)



Study Focus

Geology or other closely-related fields of study

Start & remuneration

From May 1st 2020 (open until filled)

Remuneration (and travel budget) is available in form of a **freelancing agreement** and will be discussed in the application process.

Contact

Prof. Dr. **Gerald Steiner**

Td-Lab SMR

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Advertised Project and/or
Master's Thesis – Part 2
Focus on Economic Evaluation

Potential analysis of available phosphate rock reserves and
resources: A long term perspective

Why
phosphorus

Phosphorus (P) is **essential** for **all life** on earth. Particularly for the **global food security**, as mineral **fertilizers** contribute approximately half of the global crop yield. As opposed to N and K, future primary **P supply** is **limited** to the mining of finite **phosphate rock (PR) deposits**.

Within the last decade we have seen bogus, but media-effective, studies suggesting a full depletion within this century. Thus, we see it as our **responsibility** to conduct **reliable** and **thorough scientific research**, based on an **accurate set of inventory data**, as basis for a **sustainable phosphorus management**. More specifically, we want to **model cumulative availability curves** for PR as a **function of prices**. The **economic evaluation** of this thesis will be based on the **reserve/resource estimates** provided by the preceding Master's thesis of the **geology department** (Prof. Melcher)

Research
framework

You will be part of a **highly motivated international team of scientists** as well as **experts from practice**. Within the “**Transdisciplinary laboratory for Sustainable Mineral Resources**” (Td-Lab SMR) you will be able learn as well as contribute to **state-of-the-art high impact scientific research** in the field of phosphorus, preparing you for an **academic** as well as an **industrial career**. Within the course of work, you will have the **chance to travel** internationally to relevant associations such as **USGS, BGR, or the BRGM**.

Task definition

- **Data acquisition, processing, and preparation**
- **Data unification and analytics**
- **Development** of a **production cost model** based on existing reserve/resource data

Supervision

Mohammed VI Polytechnic University:

- Prof. Dr. **Jean-Louis Bodinier**

OCP Group SA.:

- **Mohamed El Harrak**

Td Lab Krems:

- **Full team** - see QR code

Additional committed experts

- Prof. Dr. **F.-W. Wellmer** (former President of the BGR)
- Dr. **Amit Roy** (former President of the IFDC)



Study Focus

Mineral Economics or other closely-related fields of study

Start &
remuneration

From June 1st 2020 (open until filled)

Remuneration (and travel budget) is available in form of a **freelancing agreement** and will be discussed in the application process.

Contact

Prof. Dr. **Gerald Steiner**

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