

WP4: Impact evaluation of rice irrigation options on food security and safety

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|--|---|-------------------------|-----|----------|------------------|---------|------------|------|--|
| Work package number | 4 | Lead beneficiary | | | | | ARC | | |
| Work package title | Impact evaluation of rice irrigation options on food security and safety | | | | | | | | |
| Participant number | 2 | 4 | 5 | 6 | 7 | 8 | 9 | 11 | |
| Short name of participant | ENR | ARC | UdG | IAS-CSIC | TEPRO | NETAFIM | IPC | BARI | |
| Person months per participant | 6 | 20 | 3 | 1.5 | 3 | 3 | 2 | 3 | |
| Start month | 1 | | | | End month | | 36 | | |
| Objectives: To assess the impact of rice irrigation options alternative to traditional continuous flooding on food security (in the case of Egypt) and food safety (all countries). | | | | | | | | | |

Description of work

WP4 will move in twofold directions. The first one is the assessment of the potential of water saving practices and technologies in rice production in Egypt, to maintain national rice production at current levels while increasing its stability (by increasing the guarantee of water supply) and generating water surplus that can be used for other crops. The second is the identification of irrigation practices and technologies that can improve the quality of rice.

Food security in Egypt

Task 4.1 Analyse irrigation practices and technologies in the rice sector in Egypt. The analysis will resort to available statistics and to experts' knowledge (including members of the SHP, set-up in WP6); in addition, a questionnaire will be designed and distributed to collect data and information concerned with the current irrigation practices and technologies, especially after the new legislation which restricted cultivation of rice and other highly water consumptive crops. The characterization will be spatially distributed, distinguishing between regions and type of holder. The information will be presented in a geographic information system (GIS) that will include other layers related to food security like distribution of population and rice industry [Leader ARC]

Task 4.2 Conduct a regional analysis of the adaptability and adoption potential of the different water saving practices and technologies studied in WP2. The analysis will be based on local and experts' knowledge collected as part of the project activities (including members of the SHP, set-up in WP6) [Leader ARC]

Task 4.3. Overlap maps generated under Tasks 4.1 and 4.2, to estimate water saving and rice yield production, to establish the contribution of rice supply to food security [Leader ARC]

Task 4.4. Analyse long-term series of water availability and review predictions of water supply under future scenarios, to assess the gain of rice production stability in case of the implementation of innovative water saving practices also considering future scenarios [Leader ARC]

Food safety under different irrigation options

Task 4.5 Analyse quality of rice (physical indicators; arsenic and cadmium accumulation in rice grains) produced under 'benchmark' and alternative irrigation treatments compared in WP2; data will be used in the sustainability assessment carried out in WP5 [Leader ENR, Participants ARC, UdG, IAS-CSIC, TEPRO, NETAFIM, IPC and BARI]. IPC will additionally investigate microbiological and ecotoxicological parameters related to food safety in the case of municipal waste water reuse for rice irrigation.

Deliverables

D4.1 GIS of current rice irrigation practices and technologies in Egypt, and adaptability to the adoption of innovative water saving techniques [month 24]

D4.2 Report about the contribution of water saving practices and technologies to future rice production and supply stability in Egypt in connection to food security; the effects of the new Egyptian legislation which restricts cultivation of rice and other highly water consumptive crops on food security in Egypt will be also taken into account [mid-term: month 18, final: month 36]

D4.3 Report on the effects of alternative irrigation practices and technologies on quality of rice grains [mid-term: month 18, final: month 36]