

Egypt

Country Plan of Implementation

Orange Knowledge

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List of abbreviations:

b2b	business to business
CPI	Country Plan of Implementation
CSA	Climate Smart Agriculture
EKN	Embassy of the Kingdom of the Netherlands
EWRA	Egyptian Water Regulatory Agency
g2g	government to government
FNS	Food and Nutrition Security
k2k	knowledge institution to knowledge institution
MALR	Ministry of Agriculture and Land Reclamation
MWRI	Ministry of Water Resources and Irrigation
NFP	Netherlands Fellowship Programme
NICHE	Netherlands Initiative for Capacity Development in Higher Education
Nuffic	The Dutch organisation for internationalisation in education
NWP	Netherlands Water Partnership
OKP	Orange Knowledge Programme
TOC	Theory of Change
TVET/HE	Technical and Vocational Education and Training and Higher Education
RTSWRI	Regional Training Sector Water Resources and Irrigation

I. Introduction

This document describes the purpose and intentions of the implementation of the OKP programme in Egypt. It follows an identification process in which capacity needs in the country were analysed with help of available information and discussions with stakeholders. This approach helped to define the priority intervention area(s) and to formulate the outcomes to be achieved.

The Dutch organisation for internationalisation in education (Nuffic), administers this programme on behalf of the Dutch government. Nuffic is responsible for its implementation and follow-up in accordance with each Country Plan of Implementation (CPI).

II. Brief presentation of the OKP programme

The Orange Knowledge Programme (OKP) is the successor to the Netherlands Fellowship Programmes (NFP) and the Netherlands Initiative for Capacity Development in Higher Education (NICHE). The Orange Knowledge Programme merges the two preceding programmes into a single integrated approach, with the addition of new elements including increased involvement of alumni, attention to cooperation between knowledge organisations, and communication focusing on the presentation of results.

The main objective is to contribute to sustainable and inclusive development through the strengthening of organisations key to sectoral development in OKP partner countries. This will be achieved by developing the capacity, knowledge and quality of individuals as well as organisations both in the field of Technical and Vocational Education and Training and Higher Education (TVET/HE) and in other fields related to the priority themes in the OKP partner countries.

The Orange Knowledge Programme will last for 5 years and will be implemented through three types of interventions:

- individual scholarships,
- group trainings and
- institutional projects focusing on sustainable improvement of technical and higher education capacity.

For further information on the OKP reference is made to annex 1.

III. Current state of affairs

The NICHE programme in Egypt contributed to water management and agricultural development sector themes in the bilateral programme of the EKN. The NICHE programme which came to an end in 2016 encompassed five projects with a total budget of € 6.6 million and focused on the strengthening of technical and vocational training to build Egypt's workforce for the further development, management and exploitation of its water and agricultural resources. Organisational capacity was built and strengthened through

agricultural training at farmer field schools, river transport training, training in water resources and irrigation, and training in waste water management.

The NICHE programme exceeded expectations in output as compared to planned achievements. In total 181 full curricula and training programmes were designed and upgraded in the water and agricultural sector. Over 150 linkages were managed with the labour market both public and private to provide inputs. Fourteen e-learning modules were developed. In the end of the projects over 2700 students attended these programmes, of which 33 % were women. In total 127 students became self-employed after following these study programmes. NFP tailor made training covered livestock, banking and export training while only four individual scholarships were awarded in 2017 (see annex 2).

IV. Identification of needs

This section describes the main outcomes of the needs assessment and covers the gender/inclusion and labour market situation in relation to post-secondary education in the context of the selected priority themes. The description of the identification process can be found in Annex 3.

- **The selected priority theme**

Water linked to Food and Nutrition Security (FNS) and specifically efficient water management for climate smart agriculture (CSA).

- **Analysis of the priority theme**

Egypt struggles with desertification, raw sewage, limited fresh water resources, polluted Nile water, and a rapid population growth. The Nile delta and the narrow valley of the Nile make up only 5.5 % of Egypt, but houses over 95% of its people, 30-40% of its agricultural production and 50% of its industrial production.

About 95% of Egypt is desert and it suffers from a shortage of freshwater resources. Renewable water resources are fully exploited while non-renewable water resources are quickly consumed. There is an increased water supply demand from all sectors: industrial, agricultural and domestic. Climate change negatively impacts agricultural, environmental and natural systems and therefore affects livelihoods depending of those resources.

About 80% of the Nile water available for Egypt is used for agricultural production. That share will decrease as upstream countries are using and claiming more water and polluting river water with detrimental effects for downstream Egypt. Nile water supply is expected to decrease with about 35% in the next 20 years. Due to the strong population growth, with an expected increase from 100 million to 150 million in the next 20 years, it will have devastating effects on Egypt's agriculture and hence on food security. The agricultural sector therefore faces a huge challenge to manage its adequately water resources to allow it maintain the current level of food production and security.

Besides this pressure on the Nile water supply in Egypt, climate change is becoming increasingly a threat. It leads to unpredictable growth seasons due to the negative impact on agriculture of rising temperatures.

The embassy objectives in the field of post-secondary education relevant to the theme

Within the framework of development cooperation Netherlands and Egypt have, for over 40 years collaborated in water management. The water cooperation between the Netherlands and Egypt has largely taken place under the direction of the Egyptian-Dutch Advisory Panel on Water Management. This panel is now part of the delta countries approach of the International Water Ambition (IWA) with the support of the Partners for Water 2016-2021 program. The water panel used as an instrument to open doors from the substantive policy dialogue and water diplomacy to promote g2g, b2b and k2k and NGO cooperation between Dutch and Egyptian institutions, and to develop bottom-up project development initiatives. The water panel consists of Dutch and Egyptian representatives from the relevant Ministries, private sector / social sector and knowledge institutions. The panel is led at Ministers level. The secretariat of the panel is hosted by the Netherlands Water Partnership NWP.

The aim of the collaboration is to improve the efficiency and management of water, and to reduce the vulnerability to climate change. The collaboration is in line with the goals of the International Water Ambition (IWA), namely to improve flood risk management and water security, and contributes to the Sustainable Development Goals (SDGs). To achieve this, the focus of the Water Global Program will be to stimulate the use of Dutch expertise and products in the water sector in Egypt on:

- government to government (g2g),
- business to business(b2b)
- knowledge institution to knowledge institution (k2k),
- NGOs in policy dialogue and knowledge exchange

A 'Memorandum of Understanding' (MoU) was signed in November 2014 and provides the basis for this. The cooperation with Egypt is based on the three themes derived from this MoU: coastal management, sanitation and wastewater treatment, and agriculture and water. So far, much has been achieved in coastal restoration and flood defence measures in combination with other national development plans, including those for cities, ports, tourism and the environment.

In 2017, the Netherlands aided Egypt in its successful application for the Green Climate Fund grant for climate adaptation, including coastal zone management. The fund approved a 31,4 million US dollar project by the United Nations Development Programme (UNDP) to protect Egypt's Nile Delta from rising sea levels due to climate change. The project, 'Enhancing Climate Change Adaptation in the North Coast of Egypt', will be implemented by the Egyptian Ministry of Water Resources and Irrigation over seven years. The ministry will contribute 140 million Egyptian pounds to the project, which is centred around the construction of dikes to prevent flooding of homes and farmland due to rising sea levels and extreme weather due to climate change. There is also a plan for the outward expansion of Port Said, which comprises land reclamation including coastal protection and economic prospects related to tourism and real estate.

The aim of the project is to protect Port Said through climate adaptation, while at the same time attractive development possibilities are offered to the public and private sector. The project also includes the development of an integrated coastal zone management plan and

the establishment of a system to monitor changes in oceanographic parameters as an effect of climate change, as well as the impact of different shore protection works.

Egypt faces challenges in optimally managing its scarce water quantities with balancing demand and supply. With agriculture as the largest water user, the main challenge for agriculture is to optimize its water use. Egypt has requested the Netherlands to assist the country in developing plans for more efficient water use in agriculture.

The selected OKP priority of Water linked to Food and Nutrition Security (FNS) and specifically water management in climate smart agriculture (CSA) is essential in Egypt. More productive and more resilient agriculture requires a major shift in the way water is managed to ensure that this resource is used more efficiently. Water efficiency, geodata for efficient water use, drip irrigation, saline agriculture, rainfall capture, water basin management, water accounting are only some of the relevant subjects in this area. It is still a new concept and hardly been taught at educational institutions.

The education and training gap in the priority theme

Structure of the current situation and the problems of provision of post-secondary education and training in the focus themes

Water education is taught at both vocational and university level. Vocational education and training in Egypt caters for over 600,000 students supervised by the Ministry of Education. The agricultural vocational education and training in Egypt is divided into high schools and faculties. There are 122 agricultural high schools in 25 governorates with almost 18,000 enrolled students. They represent 11 % of the total number of vocational education students. There are 3-year programs to become a certified technician and 5-year programs to become an advanced technician.

There are three types of schools offering 3-year training programmes in water. Four schools providing drinking and sanitation water treatment as vocational education programmes. These schools are in Mostorod, Damanhour, Monofeya and Banysweef.

The 3-year agricultural high school system provides education in OKP relevant themes of land reclamation and agricultural machinery, which includes irrigation systems, aquaculture technology systems and fishery production.

Furthermore, there is the so called the Mubarak-Kohl Initiative of agriculture dual system high schools (3-years). It is a practical training program where students have 2 days per week of classroom training and 4 days paid work on a farm or in a factory. Job guarantee is high.

The advanced agriculture high schools (5 years) are in Mostorod, Ismaylia and Qena. They offer courses in food manufacturing, agriculture machines and land reclamation.

There is also an EU project for vocational education reform in Egypt. The project is funded by the EU with € 33,000,000 and ends by 2023. The project's objective is to improve the quality of the technical and vocational education and training (TVET) curriculum, supporting the

introduction of a new curriculum in technical secondary schools, technical colleges, technical institutes and vocational training centres. This project does not have the agriculture vocational education among its objectives. The project is too widely formulated and did not achieve much of the announced objectives until now.

In the 29 state universities about 21 have Faculties of Engineering. Most of them teach water engineering (Water management, Hydrology, irrigation, etc.) and sanitary engineering (water and wastewater treatment). At the 44 private universities there are at least 10 Faculties of Engineering.

The Regional Training Sector Water Resources and Irrigation (RTSWRI) is the national training organisation of the Ministry of Water Resources and Irrigation (MWRI) which has 100,000 employees of which 30,000 are technicians. It is a second category UNESCO institution. The mandate of the training centre is to provide the necessary training services to develop and upgrade the capacity of the ministry's staff, so they can carry out its respective tasks. Technical support from donors enabled the training centre to put in place national management procedures and develop a broad range of training modules ensuring regular transfer of vital technical and managerial skills to the staff of the water sector in order to manage, operate and maintain the irrigation and drainage systems. It develops continuous in house training for its employees, for fresh graduates joining MWR,I to management and technical staff training for all personnel across the board. MWRI is a high impact institution for the water sector. The NICHE programme has carried out a successful project to improve RTSWRI's education and training performance. For RTSWRI :
(<http://rctws.org/en/DefaultEn.aspx>)

Analysis of the education and training gap in the priority theme

Stakeholder analysis and field visits have revealed the following:

- Universities have separate agriculture and water study programmes which mainly focus on their disciplines. Even though some universities have water courses in agriculture and agriculture & irrigation in civil engineering, most study programmes have a monodisciplinary narrow focused study field in both water and agriculture, while it requires a much broader multidisciplinary view and perspective;
- Study programmes are not responding to what the labour market needs;
- Study programmes are mostly theoretical and lack training in practical skills;
- Internships are lacking;
- It seems there is little integration nor co-operation between the respective departments in each university, nor among the universities all together;
- Limited use and access to available equipment;
- Professional capacity building of teacher training is missing. Improved teaching methodologies are needed to make teaching to be more interactive;
- Link to market needs is missing in education;
- Quality assurance is not well developed;
- A lack of important analytical multi-disciplinary and critical thinking skills and interdisciplinary research methods skills, team-work, IT skills e.g. GIS and decision support systems. Problem-based approaches are not practiced;
- Technical engineering degrees prevail in the water sector and at ministries;

- Tackling institutional issues in the relationship of water and agriculture for food security is not included in study programmes;
- Capacity building for entrepreneurship skills so as to come up with successful models in crop selection and water efficiency, and become the link between the farmers and government institutions;
- Teaching methods are outdated and mostly frontal classroom teaching;
- Study programmes do not include important analytical and critical thinking skills and interdisciplinary research methods skills, team-work etc.

V. Envisaged outcome and Theory of Change

Based on the analysis of needs and the consultations with the stakeholders, a theory of change for Egypt on efficient water management in climate smart agriculture for food security has been formulated. This ToC is based on the general [OKP ToC](#) and describes the way the OKP programme will contribute to the Dutch development cooperation policy as described [here](#). The OKP M&E framework is intended to make clear that all interventions within OKP should be geared to contribute coherently and measurably to common long term impacts, as defined by the Ministry of Foreign Affairs (<https://www.dutchdevelopmentresults.nl/theme/>).

The OKP programme in Egypt covers the following outcomes and impact: Global Outcome Agro FNS & Water: The OKP programme contributes to efficient water management in climate smart and inclusive agriculture for ecologically sustainable food security in Egypt.

The following long-term impact will be aimed at:

1. Water efficiency in agriculture is increased;
2. Promote agricultural growth;
3. Create ecologically sustainable food system.

The following medium term impact will contribute to this:

- (I) Education system (TVET/HE) is of good quality, relevant and accessible (SDG 4);
- (II) Partnerships between persons and organisations are inclusive and sustainable (SDG 17);
- (III) Organisations key to (sectoral) inclusive development of partner countries are strengthened by inflow of enhanced workforce.

This will be achieved by the following outcomes:

- A. TVET/HE organisations (in the selected partner countries and in NL) perform better their core tasks, firmly embedded in their environment (in line with Egyptian / regional specific labour market needs & aiming at inclusiveness);
- B. Enhanced knowledge and skills of individuals and organisations in line with Egyptian / regional specific labour market needs & aiming at inclusiveness (in Egypt and in the NL).

Education and Training Programmes in Efficient Water Management for Climate Smart Agriculture for food security are market oriented, successful in attracting male and female

students and deliver graduates with knowledge, attitude and skills that meet the labour market needs.

Annex 4 describes the Theory of Change for Egypt for Efficient Water Management in Climate Smart Agriculture for Food Security.

Annex 5 provides an M&E matrix presenting the expected outcomes and connected indicators for the OKP country programme.

In addition, the OKP will also contribute to the Egyptian government's Sustainable Development Strategy SDS vision 2030. The social dimension of the strategy contains an Education and Training pillar which mentions as its goal:
"A high quality education and training system available to all, without discrimination within an efficient, just, sustainable and flexible institutional framework. Providing the necessary skills to students and trainees to think creatively and empower them technically and technologically. Contributing to the development of a proud, creative, responsible, and competitive citizen who accepts diversity and differences, and is proud of his country's history".

VI. Articulation and calls

The OKP offers different kind of capacity building interventions (see Annex 1):

1. partnership projects between TVET and higher education institutions locally and with the Netherlands;
2. Tailor-Made Training courses (TMT) for groups;
3. individual scholarships for mid-career professionals;
4. Alumni events.

Nuffic will publish calls for institutional cooperation projects and group training. Based on those calls, key organisations in Egypt and in the Netherlands are invited to submit proposals that are aligned with the CPI and contribute to the ToC outcomes and impact in annex 4 and 5. Please refer to the [policy framework](#) that underlies the OKP and an explanation of the [various modalities](#).

For scholarships, please consult the [OKP scholarship website](#). For updates on calls and other OKP information, please register via the [OKP updates website](#).

Preliminary planning of implementation:

Step	Date
CPI published on Nuffic website	7 September 2018
First call published	Before 15 September 2018
Deadline call	November 2018
Selection partners	December 2018
Start of project in case joint proposals	December 2018 or January 2019

VII. Indicative budget for the programme

Period of implementation 2018 – 2022	Efficient water management in climate smart agriculture for food security
Institutional projects	EUR 2,000,000
Group training	EUR 400,000
Individual scholarships	EUR 600,000
Alumni events	PM
Total EUR	EUR 3,000,000

Note: The funds allocated to the programme as a whole and to each partner country's programme may be subject to change. The budget may also change in line with political decisions taken by the authorities. In consequence, Nuffic reserves the right to adjust this indicative budget and undertakes that, in this event, it will notify the relevant parties immediately.

OKP promotes co-funding and matching of funds. Egypt is classified by the OECD as an LMIC ^[1]). Proponents applying for Tailor-Made Trainings and Institutional Partnership projects are required to include co-funding in any form in their proposals. This will contribute to reciprocity and ownership of results established within the collaboration between all partners. Integration of co-funding in the breakdown of budgets will be one of the assessment criteria in the selection of proposals. For Egypt, Nuffic will introduce a minimum level of co-funding as mandatory for applications as follows:

Lower Middle Income Country LMIC -Egypt	2018	2019	2020	2021	2022
% of co-financing	5%	10%	15%	15%	15%

In forthcoming calls, more information will be given on the specific demands for co-funding.

VIII. Harmonization and coordination with (inter)national projects and programmes

In consultation with the embassy, Nuffic will organise monitoring missions during which meetings will be arranged with the relevant authorities and other stakeholders (TFPs, NGOs, the private sector, etc.), to discuss any contextual change that could impact the implementation of the OKP programme.

The European Union, France, Germany, the United States and the World Bank, Denmark, Italy, Japan, the Netherlands, and Japan, are among the most important external cooperation

[1] OKP countries are classified in accordance with the list of Development Assistance Committee ([DAC list](#)) of the OECD.

partners in the Egyptian water and sanitation sector in terms of funding. Several other bilateral donors, as well as UNDP and UNICEF, are also active in the sector. OKP will coordinate its efforts with these donors.

IX. Monitoring programme progress

The organisations taking part in the OKP programme are asked to report on the progress of their projects and scholarships using a Results Oriented Monitoring tool which will be provided by Nuffic. They will also record their successes and setbacks, so that lessons can be learned from them as part of an organisational learning approach.

Nuffic will monitor and evaluate the OKP at programme level and will regularly discuss progress with EKN and other stakeholders, especially regarding the progress achieved related to the outcomes indicated above and the successes and failures, together with suggestions for remedying setbacks and, if possible, redefining strategies and adjusting forecasts in line with the targeted outcomes.

If necessary, for example in the event of major changes, Nuffic will discuss proposed adjustments to the CPI with the embassy and other stakeholders, which may eventually lead to an adjusted CPI.

Annexes

- Annex 1. Brief presentation of the OKP programme
- Annex 2. NICHE and NFP
- Annex 3. The description of the identification process
- Annex 4. Theory of Change for the OKP programme in Egypt for Water for Food and Nutrition Security (FNS) and specifically water management in climate smart agriculture
- Annex 5. Monitoring and evaluation framework

Annex 1. Brief presentation of the OKP programme

The Orange Knowledge Programme (OKP) is the successor to the Netherlands Fellowship Programmes (NFP) and the Netherlands Initiative for Capacity Development in Higher Education (NICHE). The Orange Knowledge Programme merges the two preceding programmes into a single integrated approach, with the addition of new elements including increased involvement of alumni, attention to cooperation between knowledge organisations, and communication focusing on the presentation of results.

The main objective is to contribute to sustainable and inclusive development through the strengthening of organisations key to sectoral development in OKP partner countries. This will be achieved by developing the capacity, knowledge and quality of individuals as well as organisations both in the field of Technical and Vocational Education and Training and Higher Education (TVET/HE) and in other fields related to the priority themes in the OKP partner countries.

In order to reach this vision, the programme will focus on the following medium and long term outcomes:

- education system (TVET/HE) is of good quality, relevant and accessible (SDG 4);
- organisations key to (sectoral) inclusive development of partner countries are strengthened by inflow of enhanced workforce;
- partnerships between persons and organisations are sustainable (SDG 17).

Reference is being made to the [Theory of Change for the OKP programme](#).

The programme will be implemented through three types of interventions:

- individual scholarships,
- group trainings and
- institutional projects.

In Egypt the three instruments will be offered in the form of an integrated approach.

The following basic principles govern the programme:

- *Innovation:*
Is key to the development and implementation of the programme and is incorporated in all aspects of the programme.
- *Reciprocity and equality:*
More attention should be devoted to reciprocity and ownership should shift to the Technical and Vocational Education and Training and Higher Education (TVET/HE) organisations in partner countries. This means that the Southern partners play an active role in the design of collaboration projects, both as submitters and as reporters of progress. The new programme will also provide more opportunities for the joint financing of scholarships, training programmes or projects with the Southern region partners, reinforcing ownership and involvement.

- *Flexibility:*
This concerns flexibility in implementing the programmes as far as themes, countries, duration and financing methods are concerned, depending on the demand and the context. Flexibility is also required in any modifications that need to be made in response to changes in the context within which the programme is implemented.
- *Demand-driven approach:*
Is key with regard to ownership, sustainability and the efficient use of resources. Important components include collaboration between Southern and Northern institutions, a comprehensive analysis based on available knowledge and reports, and the use of alumni.
- *Complementarity:*
The Knowledge Development Programme must be closely aligned with other centralised and decentralised programmes.
- *Co-financing:*
Where worthwhile and possible, the programme must stimulate co-financing.
- *Inclusion:*
The programme provides opportunities for marginalised and discriminated groups and integrates a gender perspective.
- *Focus on results:*
The programme focuses on presenting results stemming from knowledge development at individual, institutional and group levels.
- *Alumni:*
The programme creates a connection between knowledge professionals in the Southern region and the Netherlands. The new programme therefore places greater emphasis on alumni policy in all instruments.

Annex 2 NICHE & NFP

NICHE Projects Egypt

Project objective	Requesting Organisation	Dutch partner	Key issues	Budget	Project duration
Supporting a Best Practice National Centre for Agricultural Technical Training in Egypt	Desert Development Centre Now Research Institute for a Sustainable Environment (RISE)	Aeres group	<ul style="list-style-type: none"> Strengthening training programmes for laboratory staff Curriculum development at American University of Cairo Establishment equipment laboratory Evaluation of new training policy RISE within the American University of Cairo 	1,000,000	10/10/2011 till 30/09/2016
Strengthening the Farmer Field Schools Centre of Excellence	Fayoum Agricultural Department	Van Hall Larenstein	Project has been completed. Final report to be delivered before 30 Jan 2016.	937,305	30/09/2011 till 30/09/2015
Capacity Building Programme for Regional Institute for River Transport	River Transport Authority	STC Rotterdam	<ul style="list-style-type: none"> Development of curricula for final year of five year diploma programme Evaluation for test simulators for river transport management Further development of a quality assurance system for the five year diploma programme Completion and implementation of Trainer of trainers programme. 	1,200,000	31/10/2011 Till 31/03/2016

			<ul style="list-style-type: none"> • Further monitoring and testing of the first implementation of the five year diploma programme 		
To increase capacity of TSWRI to provide high quality training for the human resources in the water sector.	Training Sector for Water resources and Irrigation	Maastricht School of Management	<ul style="list-style-type: none"> • Continuous development of Master of Business Administration programmes customized for integrated Water Resources management. • Training of administrative staff • Long term training of teaching staff at Masters and PhD level • Accreditation of the newly developed courses. 	1,698,135	30/09/2011 till 30/09/2016
Improve the quality of the educational offer of 3 technical schools and 3 training centers to provide relevant and practical teaching in a sustainable way	Holding Company for water and Waste water	Mott Mc Donald	<ul style="list-style-type: none"> • Completion installation of water sample analysis instruments and training equipment • Monitoring and testing of newly developed programmes • Evaluation of first provision of courses and project results 	1,799,894	30/09/2011 till 1/03/2016

Year	TAILOR MADE TRAINING Requesting organisation	Dutch institution		Costs	Co-financed
2015	Egyptian Banking Institute (EBI) Train-the-trainer program for CSR International Best practices in the Banking sector in Egypt. Private sector	CREM BV		€ 76.622	€ 0
	Egyptian Export Council for Handicrafts Sustainable trade opportunities in the Egyptian Handicrafts sector	Brandwise BV		€ 65.900	€ 5.300
2017	Ministry of Livestock, Fisheries and Rangelands Capacity development of trainers responsible for training staff of Hila Koko Milk Collection Centres in improving of milk quality and quantity in local dairy	Dairy Training Centre (DTC)		€ 74.576	
Total				€ 217.098	€ 5.300

NFP

2017 - NFP Individual Scholarships									
Programme	Gender	Applications	Awarded scholarships	Scholarship Amount	Policy theme				
					SRL	Water	SRHR	FNS	Other
NFP - MA	F	5	0	€ 0					
	M	10	1	€ 31.196					1
NFP - PhD	F	4	0	€ 0					
	M	1	0	€ 0					
NFP - SC	F	33	3	€ 19.855				3	
	M	33	0	€ 0					
Total		86	4	€ 51.051				3	1

Annex 3 Description of the identification process

The identification process was initiated by both Nuffic and the Netherlands embassy by studying the annual plan of the bilateral cooperation between Egypt and the Netherlands, the MoU on Dutch-Egyptian water cooperation, the National Water Resource Plan for Egypt called "water for the future". Consultations were held with the secretariat at Netherlands Water Partnership, which hosts the Egyptian-Dutch Advisory Panel on Water Management in charge of implementing the earlier mentioned MoU.

In July 2018 a stakeholder consultation was held in Cairo and additional field visits were undertaken to strategic and potential OKP partners in both water and food security after which the CPI was finalised in partnership with EKN Cairo.

Questions discussed during the consultations and field visits: I. What are the main themes or challenges regarding efficient water management in agriculture for food security? II. Why are these challenges not addressed? Is the labour market not effective? III. Why are labour market challenges not solved? Is the education sector not effective? Is the education sector not effective? Why not? What structural education/training challenges are there in vocational and university education in efficient water management in agriculture for food security? IV. How can OKP contribute to addressing these challenges?

Due to the number of participants (over 30 people) two groups were formed to answer the questions:

Group 1

1- What is the current situation regarding efficient water use in agriculture and inclusive climate smart agriculture for ecologically sustainable food security in Egypt and what should be the ambition in the next 4-8 years?

General challenges: population growth, water shortage, water waste and pollution.

Education and training:

- o Existing programs on university level needs to be strengthened.
 - o Modify university curriculums to include new concepts such as water efficiency.
 - o Capacity building of irrigation entities. Introduce modern techniques on the level of farmers and trainers.
 - o Awareness on water pollution and water treatment usage.
 - o Farmers need to be provided with incentives, capacity building including Training of Trainers, awareness on crops selection especially those consuming less water.
 - o Capacity building in information gathering and analysis.
- Coordination:
 - o There is a need for better coordination between relevant institutions. A framework is needed (water, food and energy nexus)

- Running workshops that brings relevant institutions together
- Introducing a multi-disciplinary approach in all institutions, to fill in the gap of knowledge and practice between coordination of these institutions.
- A mechanism can be developed to bring relevant institutions together to increase synergies especially water management, agriculture and the relevant educational sector (private and public).
- Further integration of private and public sector for cooperation and exchange of knowledge (MWRI successful model in Fayoum)

2- Which themes within water management in climate smart agriculture CSA including water management transformations (linked to agriculture restructuring, professionalization and livelihood changes will really make a difference in improving agriculture, in Egypt and why?

- Establish a database on water resources, soil and crops
- Create an agriculture geographical map to select and identify the most suitable crops to be planted in each area and different seasons.
- Strengthen water recycling sector
- Disseminate the use of early warning systems
- The reuse of water fluids in irrigation (MWRI have has a successful model in Sinai)
- Capacity building for entrepreneurship skills so as to come up with successful models in crop selection and water efficiency, and become the link between the farmers and government institutions

3- What structural education/training challenges are there in vocational and university education in water management in climate smart agriculture CSA?

Vocational program:

- Practical training to support the theoretical part of the programs. There are many financial challenges in this respect.
- Increase the successful model of green schools to include several sectors such as agriculture, water management and energy.

University level program:

- Developing labs to support the theoretical aspect of the programs.
- Introducing multi-disciplinary approach in relevant under and post-graduate level studies such as: desalination, conflict resolution and water diplomacy) in programs such as civil engineering and environmental engineering.

Trainings:

- Awareness programs targeting farmers specifically
- Crop selection
- Water efficiency

- Entrepreneurship

Challenges:

- Address the ways in which the trainings are influencing the behavior and practices of the trainers themselves upon receiving the course.
- Identify the gap in vocational trainings and the sectors that need restructuring.
- Create programs that are adaptable to changes.
- Implementation challenges in the education sector. How to overcome institutions bureaucracy especially when it comes to public/mainstream universities. Making changes on the private educational curriculums is not considered to be not much of an issue

4- In what can OKP contribute to addressing these challenges?

OKP intends to target:

- Vocational/training programs: Short-term impact
- Educational program: Long-term but much wider impact

Group 2

Question 1 (current situation):

- Lack of planning, Egypt needs an integrated planning approach, which takes in consideration all agriculture aspects (Water, agriculture (crop portfolio), energy, and climate) all together.
- Water resources mismanagement, agriculture sector in Egypt consumes 80 percent of available water. Along with the coming challenges and the water decreasing, water management is essential.
- Existing mind set of Egyptian farmers (old thinking). This need to be changed but we also need to provide them with alternatives. If they cannot cultivate rice due to the water shortage issue, which similar products with same profits can they cultivate? This need to be identified and supported by the government.
- Lack of awareness among Egyptian about the importance of agriculture, water and the amount of challenges face due to the climate change and water scarcity (agriculture management importance).
- Success story of Morocco with agriculture schools and linking education with the market can be used as a good model in Egypt.
- R&D budget is very low and not well spent.
- The existing agriculture extension services are not enough and the farmers do not trust the government service providers anymore. For years, the ministry representatives (Morshed Zerah) in many villages in Egypt lost their credibility due to their modest knowledge and existence.
- Water pollution all over Egypt is a major problem.

- Old land (Delta); their main problems are the bad infrastructure and the water management.
- New land problems; insufficient water irrigation nets, lack of technology and the high cost.

Question two (what can make a difference if changed):

- Lack of qualified skilled labour; the labour market is full of employees but the skilled/ trained ones are very rare and even the graduates from agriculture schools and faculties are not skilled enough for the current market needs.
- Market needs are not identified properly (no link between the market needs and education planning such as numbers of workers needed and specializations).
- Agriculture schools lacking suitable modern curriculum and quality of education to be able to produce the required skilled graduates. There is a urgent need to teach :
 - The Climate Smart Agriculture approach.
 - Good Agriculture Practice (GAP).
 - Modern technology
 - Bio-technology.
 - Technical /economic efficiency.
 - Grey water management.
 - Water net management.

Question three (current challenges in education / training):

- There is no integration between different universities, different departments among same universities and even between members of the same office (island concept).
- Lack of equipment and if exist only one professor is allowed to use and prevent others.
- Professor's capacity building (Improved teaching methodologies to be more interactive).
- Link to market needs is missing in education.
- Modern Labs.
- Quality assurance.
- Corruption affects education.

Question four (what can OKP provide to address challenges in question three):

- Develop suitable up to date curriculum for Egypt in general taking in consideration market needs now as well as planning for the future.
- Partnership with the Egypt to send Egyptian professors for knowledge gain.
- Internship program for students.
- Applying the Dutch approach (learning by doing).
- Cairo University has a success story that can be followed; they signed and implemented an agreement with five Italian universities to start new master programs in food processing and land management and they are very successful.

- An integrated water and agriculture curriculum taking in consideration the social economy and environment factors.
- Collaborate with the existing Child Universities to improve children awareness and raise a well-educated generation

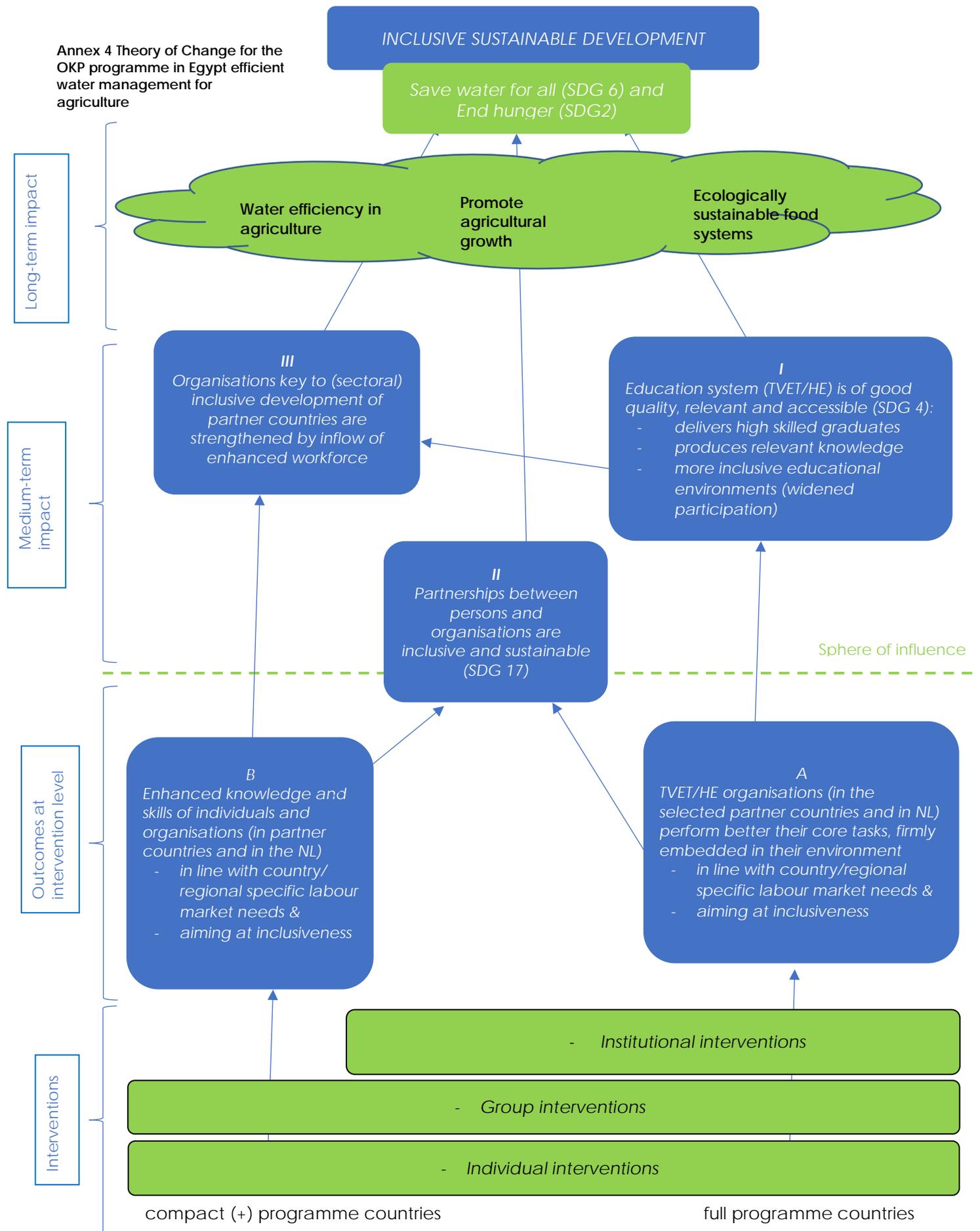
A non-exhaustive list of Water Training Institutions in Egypt

Name	Website and information
The Regional Training Sector for Water Resources and Irrigation RTSWI	<u>RTSWRI is the national training center of the Ministry of Water Resources and Irrigation MWRI.</u> http://rctws.org/en/DefaultEn.aspx
National Water Research Center	https://www.nwrc.gov.eg/
Holding Company for Water and Wastewater - General Directorate for Training	http://www.gcwc.com.eg/main/tr-about.html
Agriculture Research Center	http://www.arc.sci.eg/ There are many agriculture research centers (ARC) in Egypt, but there is only one institute for land and water treatment. This institute is a facility for research and development provided to the ministry of agriculture researchers employees.
Cairo University – Faculty of Agriculture	http://www.agr.cu.edu.eg/index.php/menuitem827/menuitem835/2015-07-13-10-27-15
Cairo University – Faculty of Engineering, Water and Hydraulics dept.	At the faculty of engineering, Cairo University there is an irrigation, hydraulics and marine desalination environmental engineering divisions, where the following topics are provided: <ul style="list-style-type: none"> • Irrigation and drainage, • Water resources or shared water resources, • Coastal engineering, • Underground water movement, • Sediment movement, • Piping networks under pressure or free flow of hydraulic installations, as well as pumping tests and characteristics of lifting pumps, and unstable flow experiments with open channels, • Pipes and salinity measurements and factors that determine the relationship of water, soil and plant.

Ain Shams University – Institute of Environmental Studies and Research	http://iesr.asu.edu.eg//english/
Egyptian International Center for Agriculture	http://terravivagrants.org/grant-makers/group-1-agriculture-fisheries-forestry/egyptian-international-center-for-agriculture/
National Institute of Oceanography and Fisheries	http://www.niof.sci.eg/
Heliopolis University	Faculty of Engineering, Water Engineering http://www.hu.edu.eg/faculties/engineering/
Kafr el Sheikh University	http://www.kfs.edu.eg/ Kafr el Skeikh University, the following courses are provided: Under graduate studies (water irrigation): <ul style="list-style-type: none"> • Fundamental of soil Sciences. • Irrigation and fertilization system of desert soil. • Fundamental of agricultural irrigation and drainage. • Soils Physics. • Soil Reclamation. • Modern irrigation and their application. • Water resources management. • Ground Water. • Engineering of Drainage. • Computer Applications in Irrigation. • Plane Survey and Application. • Hydraulics and Fluid Mechanics. • Hydraulic Machines. • Technology of Water Management. • Design of Irrigation and Drainage Systems. • Engineering of Irrigation Equipment. Post graduate studies: <ul style="list-style-type: none"> • Environmental Soil Physics. • Irrigation Water Evaluation. • Advanced Soil, Water and Plant Pollution Remediation. • Advanced Agricultural Irrigation. • Soil, Water and Plant Relationship. • Soil pollutants residues remediation management. • Advanced land drainage.

<p>Vocational Training Schools 'madrasa's' under the Ministry of Education</p>	<p>6 Departments in Ministry of Education pertaining to Technical High schools madrasa's</p> <ol style="list-style-type: none"> 1. Animal husbandry and poultry 2. Food processing 3. Agricultural machines (also specialisation water) 4. Lab technicians 5. Fruits and vegetable (horticulture ?) 6. Fish <ul style="list-style-type: none"> • There are 120 madrasa's, 250,000 students, 70 % boys/30% girls • 3 year education, 1st year basic foundation courses; 2nd year choose specific specialisation, 3rd year specialisation. • There are also madrasa's inside factories
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Annex 4 Theory of Change for the OKP programme in Egypt efficient water management for agriculture



Annex 5. Monitoring and evaluation framework

These matrices are intended to make clear that all food security and water interventions within OKP should be geared to contribute coherently and measurably to common long term impacts, as defined by the Dutch Ministry of foreign affairs (<https://www.dutchdevelopmentresults.nl/theme>). It is important to be aware that this matrix is subject to adjustments, in line with the Dutch development policy; - When designing an OKP interventions, projects have to contribute at least to one long term impact; - The indicators in bold are compulsory; - Nuffic is currently developing an online instrument based on this matrix intended to facilitate the monitoring and evaluation of OKP projects; - When calls for proposals will be published per country, this matrix can be made more specific by focussing on specific long-term impact or choosing more compulsory indicators, depending on the country focus.

Objective: The OKP programme contributes to efficient water management in climate smart and inclusive agriculture for ecologically sustainable food security in Egypt (SDGs 2 and 6) through the strengthening of capacity, knowledge and quality of individuals as well as key organisations in the fields of Technical and Vocational Education and Training and Higher Education (TVET/HE) in OKP partner countries.			
Long-term impact at programme level (link with Water and FNS ToC)			
Long term impact	Long term impact indicator	Medium-term indicator	Outcome indicator (at project level)
1. Water efficiency in agriculture increased	Change of crop yield per unit of water used over time (SDG 6.4.1)	<ul style="list-style-type: none"> - number of institutions indirectly benefiting from innovative and efficient water allocation methodologies which increase crop yield - Number of associations, water users organisations and number of their professionals indirectly trained in applications in water-efficiency ranging from crop selection to irrigation scheduling etc., - Number of institutions that use the FAO AQUASTAT database to measure water productivity (indirectly). - Number of 'ready-to-use' applications for farmers and policy officers are developed and distributed (indirectly) - Number of farmers with a higher yield with the same amount of used water (indirectly) 	<ul style="list-style-type: none"> - Number of associations, water users organisations and number of their professionals directly trained in applications in water-efficiency ranging from crop selection to irrigation scheduling etc., - Number of institutions that use the FAO AQUASTAT database to measure water productivity (directly). - Number of 'ready-to-use' applications for farmers and policy officers are developed and distributed (directly) - Number of farmers with a higher yield with the same amount of used water (directly)
2. Promote agricultural growth	Number of family farms (sub-sector, male/female, age: % < 35) that doubled	<ul style="list-style-type: none"> - number of family farms (sub-sector, male/female, age: % < 35) with increased productivity and/or income (indirectly**) - number of family farms (sub-sector, male/female, age: % < 35) with improved 	<ul style="list-style-type: none"> - number of family farms (sub-sector, male/female, age: % < 35) with increased productivity and/or income (directly*)

	their productivity and/or income	<p>access to input and/or output markets (indirectly**)</p> <ul style="list-style-type: none"> - number of family farms (sub-sector, male/female, age: % < 35) whose farming enterprise became more resilient to shocks (indirectly**) 	<ul style="list-style-type: none"> - number of family farms (sub-sector, male/female, age: % < 35) with improved access to input and/or output markets (directly*) - number of family farms (sub-sector, male/female, age: % < 35) whose farming enterprise became more resilient to shocks (directly*)
3. Create ecologically sustainable food systems	Number of hectares of farmland converted to sustainable use	<ul style="list-style-type: none"> - number of hectares of farmland used more eco-friendly (indirectly**) - number of hectares of farmland that became part of improved watershed/landscape management (indirectly**) - number of hectares of farmland that agro-ecologically became more resilient to shocks (indirectly**) 	<ul style="list-style-type: none"> - number of hectares of farmland used more eco-friendly (directly*) - number of hectares of farmland that became part of improved watershed/landscape management (directly*) - number of hectares of farmland that agro-ecologically became more resilient to shocks (directly*)

Medium-term impact	Indicator
<p>I. Education system (TVET/HE) is of good quality, relevant and accessible</p> <ul style="list-style-type: none"> - delivers high skilled graduates - produces relevant knowledge - more inclusive educational environments (widened participation) 	<ul style="list-style-type: none"> → <i>Education</i> <ul style="list-style-type: none"> - number of knowledge institutions that perform better - number of graduates (self) employed (male/female) - number of jobs supported/created - number of revised/newly developed curricula in NL and/or Southern partner organisation that integrate research results - number of knowledge institutions with an increased participation of students from minorities - education system represents needs of labour market/gender - graduate satisfaction (employed/non employed/self-employed) (male/female) - employers' satisfaction over the graduates' skills and knowledge → <i>Research</i> <ul style="list-style-type: none"> - number of research results/contributions translated into policy advice at national, regional or local level → <i>Society</i> <ul style="list-style-type: none"> - number of beneficiaries reached with knowledge, skills and techniques (indirectly**) - number of services to community (indirectly**) - number of businesses co-investing in activities - number of improvements in (inter)national policies/laws (indirectly**)
<p>II. Partnerships between persons and organisations are inclusive and sustainable</p>	<ul style="list-style-type: none"> - number of MoUs or other types of formal collaboration agreements exist 1, 3, 5 years after end of project - number of joint (research) proposals submitted and financed - number of joint publications - number of joint/double degrees offered - number of academic staff of partner country still cooperates with academic staff of other education organisation(s) - number of scholarship holders that became members of the alumni association of their host university (of applied sciences) (male/female) (NL/other) - number of Dutch training education organisations that have improved their training methods - number of staff of Dutch training education organisations that have gained new insights and ways of working
<p>III. Organisations key to (sectoral) inclusive development of partner countries are strengthened by inflow of enhanced workforce</p>	<ul style="list-style-type: none"> → <i>Individual</i> <ul style="list-style-type: none"> - % of alumni who state that they have applied in their workplace the knowledge and skills gained from the interventions - % of alumni promoted to more strategic positions within their own organisation or other organisation - narratives from alumni on policy and procedural changes, inclusive development, and innovations as a result of interventions → <i>Organisational</i> <ul style="list-style-type: none"> - % employer satisfaction on suitability of the training for the organisation - % of alumni still employed by the organisation that nominated them - % employers that states that their department/organisation has become more effective because of OKP intervention - % of alumni who have applied the acquired knowledge and skills within their working environment - testimonials from employers on organisational changes (implemented procedure/techniques, work ethic etc. due to trained staff (critical mass))

Outcomes at project level	
Outcome	Indicator
<p>A. TVET/HE organisations (in the selected partner countries and in NL) perform better their core tasks, firmly embedded in their environment, in line with country/regional specific labour market needs & aiming at inclusiveness</p>	<p>→ <i>Education</i></p> <ul style="list-style-type: none"> - number of knowledge institutions supported directly - increased participation of students from minorities - number of teachers/ trainers have gained qualitative and relevant knowledge and skills to develop and offer the revised/developed study programmes (# trainers trained, male/female/minorities/PhD/MSc/short training) - number of graduates delivered (male/female/minorities degree/non-degree) (directly*) - number of curricula for degree, non-degree and short courses revised/newly developed - number of students enrolled in revised/newly developed study programmes (male/female) - student satisfaction (male/female) <p>→ <i>Research</i></p> <ul style="list-style-type: none"> - number of research strategies/agenda/methodologies revised/strengthened and implemented - number of relevant publications (level, gender, inclusion) - number of relevant innovations <p>→ <i>Society</i></p> <ul style="list-style-type: none"> - number of beneficiaries reached with knowledge, skills and techniques (directly*) - number of MoUs or other types of collaboration agreements signed (education, private, public, surrounding community) (in NL, own country, other country) - number of students performing an internship or practical work (male/female) - number of SMEs supported - number of improvements in (inter)national policies/laws (directly*) <p>→ <i>Organisational</i></p> <ul style="list-style-type: none"> - improved gender equality and gender awareness in the knowledge institution - number of organisations revised/developed and implemented a strategic plan - number of organisations revised/developed institutional mechanism for quality assurance - number of organisations with a revised/developed system to register and monitor its alumni - number of organisations have developed and implemented a system to regularly survey the satisfaction of students, short courses participants, graduates and/or employers - number of laboratories established/strengthened - number of libraries/resource centres established/strengthened - % of men and women in management of faculty/department - % of men and women of teaching staff of faculty/department - number of organisations with improved policies or procedures to encourage access to education of minorities - diversity in participation of project activities for management and teaching staff (i.e. balance junior/senior staff, women/men, minorities) - number of organisations with policies and procedures to ensure an environment which is gender sensitive - number of organisations with policies and procedures to ensure an environment which is conducive for minorities

<p>B. Enhanced knowledge and skills of individuals and organisations (in partner countries and in the NL) in line with country/regional specific labour market needs & aiming at inclusiveness</p>	<p>→ <i>Individual</i></p> <ul style="list-style-type: none"> - number of scholarship holders that have successfully completed course/training (level/male/female/minorities) - % scholarship holder's/alumni satisfaction - % of scholarship holders/alumni employed post-study within region and same employer (men/women) - % of scholarships awarded to women - % of scholarships awarded to minorities - % of quota for scholarships for women - % of quota for scholarships for minorities - number of stimulating measures/extra facilities aimed at preparation, supervision and aftercare of female candidates - number of stimulating measures/extra facilities aimed at preparation, supervision and aftercare of minorities - % alumni who state that they have acquired new knowledge and skills; e.g. problem solving, effective communication - % alumni who are promoted to a more strategic position post-study - changes in personal, academic and professional attitudes and attributes through training and education programmes - improved gender equality and gender awareness in the workplace <p>→ <i>Organisational</i></p> <ul style="list-style-type: none"> - number of organisations strengthened by individual and/or group training (private/public) - % of alumni who have applied the acquired knowledge and skills within their working environment - employers satisfaction on the added value of return scholars to the initial working environmental - number of organisations with institutional mechanism for quality assurance - number of organisations developed and implemented a gender strategy
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* Direct: target group who have been reached during project period by the new or revised outreach programme or have followed the new or revised curricula/short courses.

** Indirect: target group reached beyond the project period by graduates of the new or revised curricula/short courses.