



STATE AGENCY FOR WATER RESOURCES
MINISTRY OF AGRICULTURE, WATER AND FORESTRY
OF THE KYRGYZ REPUBLIC



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NATIONAL POLICY DIALOGUE on WATER UNDER THE EUROPEAN UNION WATER INITIATIVE
Expert workshop, June 11, 2021, Bishkek, Kyrgyzstan

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Revising training materials on "Economic instruments for sustainable management of water resources and greater level of water security" developed for, and used by, the KEU:

- Action to date

- What else could be done to further upgrade the training materials



**НАЦИОНАЛЬНЫЙ ДИАЛОГ О ВОДНОЙ ПОЛИТИКЕ В РАМКАХ ВОДНОЙ
ИНИЦИАТИВЫ ЕВРОПЕЙСКОГО СОЮЗА, КОМПОНЕНТ ДЛЯ СТРАН ВОСТОЧНОЙ
ЕВРОПЫ, КАВКАЗА И ЦЕНТРАЛЬНОЙ АЗИИ**

Бишкек, 11 июня 2021

ОПЫТ РАЗРАБОТКИ И ВНЕДРЕНИЯ УЧЕБНОГО КУРСА ПО ЭКОНОМИЧЕСКИМ ИНСТРУМЕНТАМ УПРАВЛЕНИЯ ВОДНЫМИ РЕСУРСАМИ В КЫРГЫЗСКОЙ РЕСПУБЛИКЕ

Козельцев Михаил Львович,

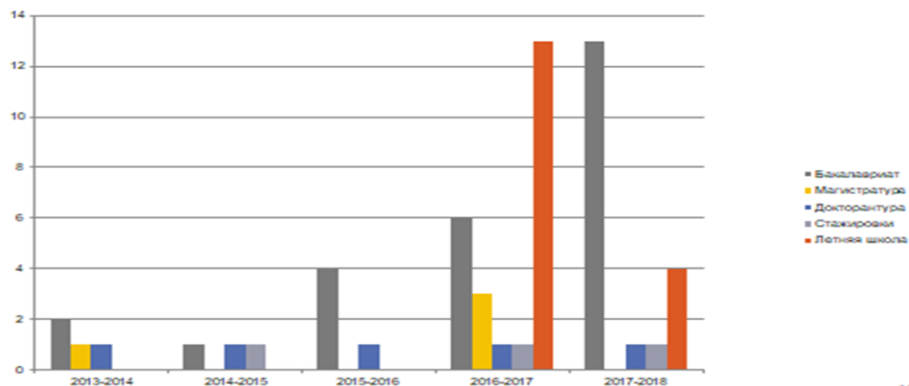
к.э.н. профессор НИУ ВШЭ

**Турсуналиева Динара Мухтаровна, к.э.н.,
Проректор по УМР КЭУ им.М.Рыскулбекова**



- ▶ **Кыргызский экономический университет (КЭУ) имени М.Рыскулбекова** - это единственное учебное заведение в нашей стране, которое эволюционным путем прошло путь от Фрунзенского техникума советской торговли (в 1960х) до университета (с 2007 г.).
- ▶ За это время наш университет превратился в **крупный, авторитетный образовательный центр**, который сегодня справедливо гордится своими славными традициями и историей.
- ▶ Причем наш университет - это не только образовательный комплекс, но и **научное учреждение**, которое вносит вклад в развитие фундаментальных и прикладных исследований, имеет связи с ведущими научно-исследовательскими структурами в Кыргызстане и за рубежом (Германия, Испания, Норвегия, Румыния, Турция, Чехия, Казахстан и Россия), и внедрение научных достижений в практику.

Обучение студентов и стажировка преподавателей за рубежом



ДЕЙСТВУЮЩИЕ ПРОГРАММЫ КЭУ ПО АКАДЕМИЧЕСКОЙ МОБИЛЬНОСТИ

1. Университет Яссы им.А.И Куза (Румыния)
2. Университет прикладных наук Ludwigshafen am Rhein (Германия)
3. Университет Сакарья (Турция)
4. Юго-Восточный Университет Норвегии (Норвегия)
5. Университет Валладолид (Испания)
6. Масариков Университет (Чехия)
7. Финансовый Университет при Правительстве РФ (Россия)
8. Университет НАРХОЗ, университет AlmaU (Казахстан)
9. Университет Ла Сапиенза (Испания)
10. Высшая школа экономики (Россия)
11. Алматинский технологический университет (Казахстан)



Возможности мобильности



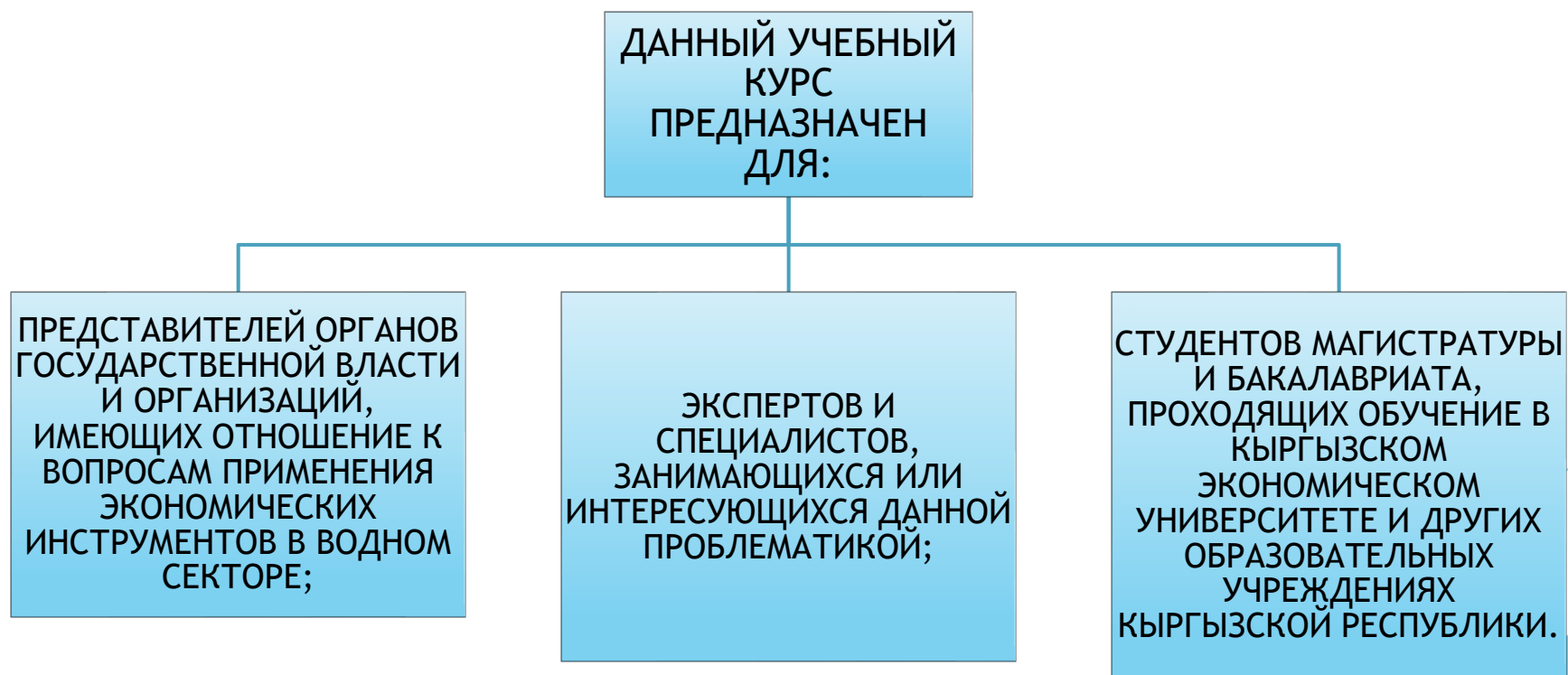
НАПРАВЛЕНИЯ СОТРУДНИЧЕСТВА



ЦЕЛЬ ДАННОГО УЧЕБНОГО ПОСОБИЯ И СООТВЕТСТВУЮЩЕГО УЧЕБНОГО КУРСА НА ЕГО ОСНОВЕ - РАЗВИТИЕ МЕСТНОГО ПОТЕНЦИАЛА В ОБЛАСТИ ЭКОНОМИЧЕСКОГО АНАЛИЗА И ПРИМЕНЕНИЯ ИНСТРУМЕНТОВ УПРАВЛЕНИЯ ВОДНЫМИ РЕСУРСАМИ ДЛЯ УСТОЙЧИВОГО РАЗВИТИЯ ВОДНОГО ХОЗЯЙСТВА И ПОВЫШЕНИЯ УРОВНЯ ВОДНОЙ БЕЗОПАСНОСТИ СТРАНЫ.

В КЫРГЫЗСКОЙ РЕСПУБЛИКЕ, В ЭКОНОМИКУ КОТОРОЙ ЗНАЧИТЕЛЬНЫЙ ВКЛАД ВНОСЯТ СЕКТОРА, СИЛЬНО ЗАВИСЯЩИЕ ОТ ВОДНЫХ РЕСУРСОВ И ВОДОХОЗЯЙСТВЕННЫХ СИСТЕМ - ОРОШАЕМОЕ ЗЕМЛЕДЕЛИЕ, ГИДРОГЕНЕРАЦИЯ, ТУРИЗМ И РЕКРЕАЦИЯ ВОКРУГ ВОДНЫХ ОБЪЕКТОВ - ОТСУТСТВУЕТ ПОДГОТОВКА СПЕЦИАЛИСТОВ ВЫСШЕЙ КВАЛИФИКАЦИИ В ОБЛАСТИ ЭКОНОМИКИ УПРАВЛЕНИЯ ВОДНЫМИ РЕСУРСАМИ.

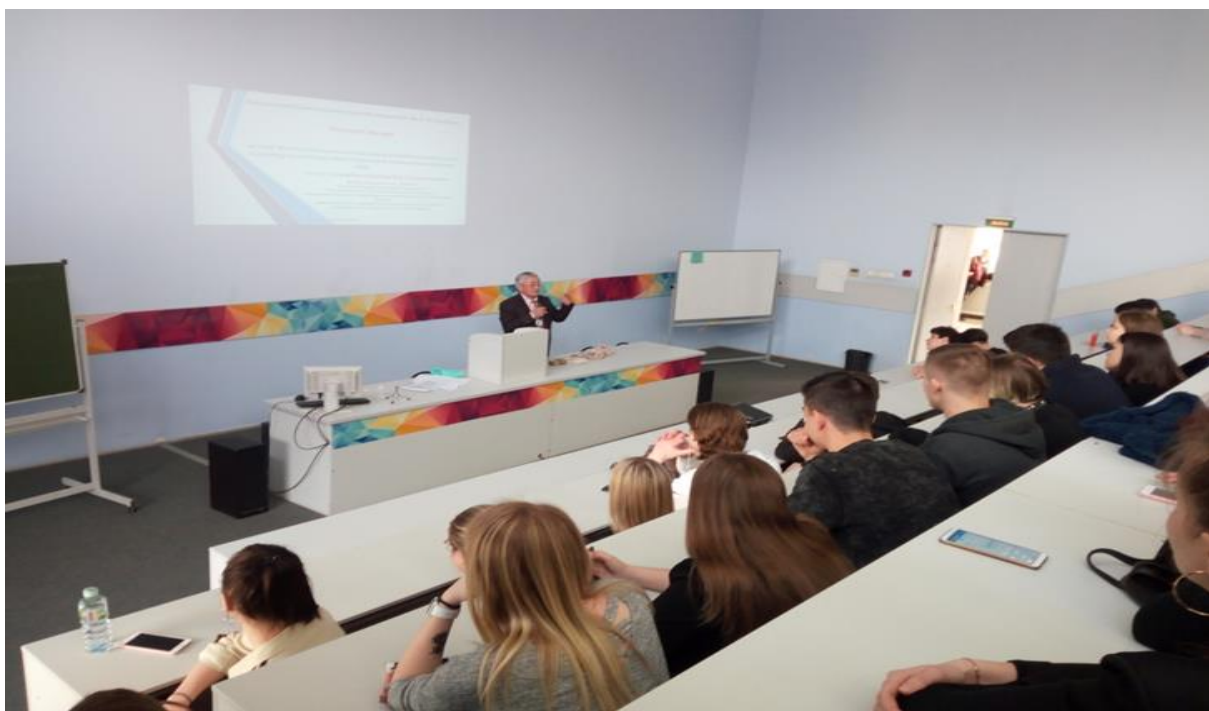
СОЗДАНИЕ В КЭУ УЧЕБНОГО КУРСА НА ОСНОВЕ ДАННОГО УЧЕБНОГО ПОСОБИЯ ПРИЗВАНО ЛИКВИДИРОВАТЬ ЭТО ПРОБЕЛ.



- ▶ Для разработки проекта Учебного пособия и учебно-методических материалов (УММ) к нему в КЭУ на добровольной основе была создана авторская группа из преподавателей – энтузиастов в составе:
- ▶ к.э.н. Турсуналиева Д. М., к.э.н. Токтосунова Ч.Т., к.э.н. Расулова Н.К.
- ▶ **Научными консультантами** проекта являются - Ректор к.э.н., доцент Кадыралиев А.Т. и д.э.н., профессор Камчыбеков Т.К.
- ▶ **ОЭСР** оказало методическую, а программа **FinWaterWEI-II** - финансовую поддержку этой работы.
- ▶ **Тема для КЭУ – абсолютно новая**, поэтому в процессе подготовки проекта Учебного пособия нам - преподавателям КЭУ пришлось освоить большой массив новых знаний, учиться самим, чтобы стать способными учить студентов этому сложному новому для нас предмету.
- ▶ В помощь КЭУ ОЭСР привлекла также международных консультантов – соавторов учебного пособия, в составе: к.э.н. Козельцев М.Л., д.э.н. Шевчук А.В., к.т.н. Сиваев С.Б., а также Куликова Н.Н.
- ▶ В редакционную группу вошли – (Д.М Турсуналиева, Ч.Т. Токтосунова), М.Л. Козельцев и А.П. Мартусевич – руководитель проекта от ОЭСР.
- ▶ Проект Учебного пособия для апробации в КЭУ и других заинтересованных учебных заведениях был в раздаточных материалах заключительной конференции по проекту **FinWaterWEI-II**.

Мероприятия по апробации УП в КЭУ

- ▶ Международная конференция молодых ученых **«Проблемы и перспективы развития секторов экономики»**, г. Бишкек, 18-19 мая 2018 г. (*Секция 4. «Водные ресурсы КР: инструменты, механизмы, проблемы»*)
- ▶ Круглый стол на тему: **«Экономические инструменты управления водными ресурсами КР»**, презентация учебного пособия, г. Бишкек, 22 июня 2018 г.
- ▶ Семинары для молодых преподавателей и аспирантов (*май-июнь 2018*)
- ▶ *Заключительная региональная конференция по проекту FinWaterWEI-II Бишкек, 26 сентября 2018 года*
- ▶ *2 учебных года велась апробация дисциплины в магистратуре (2018-2019, 2019-2020)*





МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ
КЫРГЫЗСКОЙ РЕСПУБЛИКИ

КЫРГЫЗСКИЙ ЭКОНОМИЧЕСКИЙ УНИВЕРСИТЕТ
ИМ. М.РЫСКУЛБЕКОВА

OECD GREEN FinWater WEI

КРУГЛЫЙ СТОЛ

ЭКОНОМИЧЕСКИЕ ИНСТРУМЕНТЫ УПРАВЛЕНИЯ ВОДНЫМИ РЕСУРСАМИ КЫРГЫЗСКОЙ РЕСПУБЛИКИ

презентация и обсуждение проекта учебного пособия

г. Бишкек, 22 июня 2018 г.

A. UPGRADING THE TRAINING MATERIALS : ACTION TO DATE

- ▶ TO ADD A CHAPTER ON DAMAGE REMEDIATION OR COMPENSATION - AS PER TOR, DONE
- ▶ TO IMPROVE THE CHAPTER ON ECONOMIC INSTRUMENTS FOR MANAGING TOURISM AND RECREATION AROUND WATER BODIES - YES, BY INITIATIVE OF KEU
- ▶ TO INCLUDE NEW REGULATION AND INSTRUMENTS ADOPTED IN KYRGYZSTAN - YES
- ▶ TO USE MORE RECENT DATA AND ADD MORE CASE STUDIES ON KYRGYZSTAN - YES, BY INITIATIVE OF KEU
- ▶ DEVELOP TEACHING METHODOLOGY ASPECTS TAKING INTO ACCOUNT KEU EXPERIENCE WITH DELIVERING LECTURES BASED ON THE TRAINING MATERIALS - YES, BASED ON TEACHING EXPERIENCE AT KEU IN 2019-21

RESOURCES ARE REQUIRED TO PRINT SOME 120 COPIES OF THE UPDATED TEXTBOOK

ADDING A CHAPTER ON DAMAGE: ISSUES THAT MATTER

- ▶ Increasing risks of accidents leading to ecological catastrophes
- ▶ Considering nature and natural creatures as economic goods (for consumption, recreation or entertainment)
- ▶ Destructing natural ecosystems in a day to day economic activities
- ▶ Separating from participation in environmental protection activities
- ▶ Placing environmental issues to the backyard of political agenda
- ▶ Paying too little attention to environmental issues in mass media and education

RESULTS: see the case of Norilsk catastrophe (next slide with no comment)



Ecosystems deterioration becomes the top issue for the current generation and will only increase its importance for the future one

- ▶ **The new chapter** is based on the paradigm that *Environmental Damage* is not only about losses of time and money for fishermen, farmers, swimmers and others (called recipients) who regularly satisfy their needs and interests getting personal (community) benefits from using water resources and objects.
- ▶ Compensation of their losses is a procedure for **economic damage**, including identification (proving the fact of harm and calculating its size in monetary form) and indemnification to so-called “third parties”

We enter the era of **INTRINSIC VALUE** of the **ENVIRONMENT** when rehabilitation of damaged natural objects = **in-kind remediation** (of water objects with related water, forest and land ecosystems around) becomes a **MUST** in all cases where it is technically possible

May be the time has come for **ECOLOGY TURN** ?!

Paradigms change accents on separation of concepts of ecological and economic damage caused to environment

Vasily Perov "Winter bear hunting" 1879



2. New mainstream in education

- ▶ To become sure that you accept (or moving in this direction 😊) the "intrinsic value of nature" look at this popular picture painted in 1879 (next slide)
- ▶ You are definitely becoming full of negative emotions (even if you like hunting) to these people (Inhumans) meanly killing a creature

Time is changing and our consciousness, brains, our souls open to humanism

This is the Challenge of the XXI Century and we should put Environment in the centre of an educational course and does not matter whether students, or practitioners form an auditoria

Turn to Rehabilitation / Damage Remediation : Sequencing right the damage compensation activities

- 1) Description of an accident
- 2) Identification of all territories and ecosystems affected by an accident
- 3) Space and time dimensions, scale and the content of current and potential future damage
- 4) Identification of potential social and economic problems (i.e. transnational)
- 5) Assessment of results of primary rehabilitation -
- 6) Assessment of necessity for further actions of compensation rehabilitation, including equivalency analyses, data collection for a qualified assessment procedure
- 7) Selection of consequence of rehabilitation measures

**B. WHAT ELSE COULD BE DONE AT THE NEXT STAGE TO FURTHER UPGRADE THE MATERIALS
(in 2021-22?)**

TO REFLECT MODERN VIEWS ON WATER RESOURCES AND RELATED ECOSYSTEMS :

WE CONSIDER REHABILITATION OF WATER OBJECTS AND RELATED LAND AND FOREST ECOSYSTEMS AS A MUST

WE CONCENTRATE ON THE NEW CONTENT OF “ENVIRONMENTAL DAMAGE” AND LINK IT WITH ECONOMIC DAMAGE CAUSED BY NEGATIVE IMPACT OF HUMAN ACTIVITY ON ENVIRONMENT.

EVEN MORE: WE OPTIMIZE THE USE OF GOVERNMENT SUPPORT IN DIFFERENT FORMS (FROM EARMARKED PROJECTS TO SUBSIDIES)

WE ESTABLISH LINKS BETWEEN CLIMATE AND WATER POLICIES AND CONSIDER ROLE OF CARBON UNITS AND HAZARD ASSESSMENT UNITS (HAZARD UNITS)

TO STRENGTHEN LINKS WITH FOOD AND ENERGY SECURITY

TO ADD SUMMARIES OF RELEVANT DOCUMENTS FROM RECENT WORKSHOPS AND OF TOP INTERNATIONAL EVENTS (GOOD INTERNATIONAL PRACTICES)

1. New approaches to water management



A modern water management system should encourage the introduction of water-saving technologies. To do this, it is necessary to improve the methods of calculating payments (water use and pollution), taking into account the magnitude of losses associated with the quantitative and qualitative depletion of water resources.

The previous attitude to nature to great losses. The Aral Sea has dramatically decreased. The Syr Darya River is shallowing from year to year as a result of the use of growing volumes of water for irrigation, due to evaporation losses and due to the use of outdated technologies.



ARAL SEA BASIN

Disposable water resources volume 120 km³ 90% out of water flow is used for irrigation



MELTING BEAUTY: MINING AND CLIMATE CHANGE ENDANGER WATER RESOURCES



New approaches to water management -2



A new system of charges for water quality degradation **by using hazard units**, based on the unified assessment of major pollutants contribution. When applying it, the task of managing water resources is significantly simplified

New approaches to water management - 3



Hazard unit is the amount of a polluting substance, for the discharge of which a certain fee is charged to water bodies. The system of payments by hazard units works effectively in Germany, where the main pollutants are oxidized organic compounds, phosphorus, nitrogen and heavy metals.

TO ADD MORE CASE-STUDIES TO THE TRAINING MATERIALS: importantly, on economic aspects of Best Available Techniques (BAT)

Example of technologies related to linkages between water and food security (very topical for Central Asia):

- ▶ As irrigation heavily uses water we make some examples of best practices, or BAT that might be discussed with students and expert community.
- ▶ The major questions (concerning topic of this manual)^
 - How much approximately this might cost
 - How to organize public-private partnership
 - How and where the water factor might become the crucial in transfer to BAT in irrigation

New technologies



Drip irrigation is a form of irrigation that saves water and fertilizer by allowing water to drip slowly to the roots of many different plants, either onto the soil surface or directly onto the root zone, through a network of valves, pipes, tubing, and emitters. It is chosen instead of surface irrigation for various reasons, often including concern about minimizing evaporation.

New technologies - 2



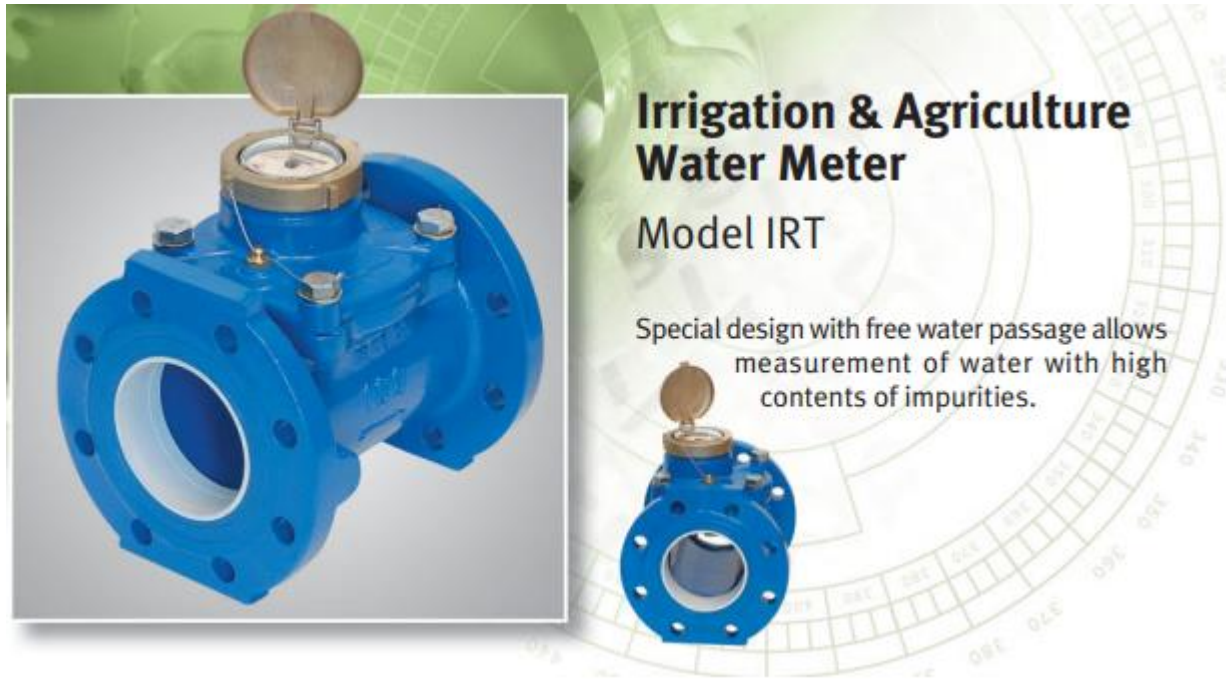
Drip irrigation under mulch is an irrigation technique that combines mulching planting and drip irrigation. It is also an extension and deepening of the drought-resistant technique of mulching cultivation. According to the needs of crop growth and development, water is supplied drop by drop to the limited soil space through the drip irrigation system/

New technologies - 3



With the Trace Quantity Irrigation (TQI) technology, plants yielded the same output with 30-40 % of the water volume that would be needed with drip irrigation. The key part of the TQI system is a water-controlling tip that is put underground near crops' roots. With the same amount of water, the TQI system can irrigate twice as much land as with drip irrigation, and more than 10 times that of flood irrigation.

New technologies - 4



Special irrigation and agriculture water meters - simple, reliable, designed to measure water with high turbidity.

New technologies - 5



Automated Variable Filtration (AVF) technology involves a simple process where upward flow of influent is cleaned by downward flow of filter media. It eliminates the need for any additional process or freshwater for filter media cleaning. The process delivers water with quality equivalent to that of micro-filtration technology. It features no moving parts and consumes less power, offering savings on reduced operating and maintenance costs.