6.3.1 Does your university as a body have a process in place to treat waste water?

Treating Water

https://twitter.com/QassimUniv1/status/1642430149583929344 [1]

524 thousand cubic meters annually of treated water are invested to enhance the vegetation cover in the university city with #جامعة_القصيم

From الإخبارية - آخر الأخبار

Qassim Water Treatment

https://wetico.com/?project=qassim-university [2]

Apart from the supplied water treatment plant & pump sta – tion. The sewage treatment plant of average capacity equals to 5250 m3/d & can be extended to a maximum capacity up to 13125 m3/d. It consists mainly of two treatment streams, each stream of 2625 m3/d capacity; using a very convenient treatment method called RBC (Rotating Biological Contractors).

The wastewater treatment plant is designed to treat the wastewater that coming from the different facilities inside the university. Suspended solids and biodegradable organic matter are reduced through the treatment system to the acceptable limit for irrigation.

Executive Summary of April 2022

https://services.qu.edu.sa/laravel-filemanager/files/shares/%D9%85%D9%84%D8%AE%D8%B5%20%D9%8A%D9%86%D8%A7%D9%8A%D8%B1.pdf [3]

10,354 cubic meters of sewage water were drained into the facilities and buildings of the university city and transported across 21 substations to the main station to be processed triple via the antenna rotation system without any stoppage

- تم تصريف 10354 متر مكعب من مياه الصرف الصحي في مرافق ومباني المدينة الجامعية ونقلها عبر 21 محطة رفع فرعية الى المحطة الرئيسية لمعالجتها ثلاثياً عبر نظام التدوير الهوائي دون أي توقف

Water Plant Operation and Maintenance Section

https://services.qu.edu.sa/content/p/56 [4]

The KSA Green Initiative

https://twitter.com/QassimUniv1/status/1670478362530181120 [5]

From الإخبارية - آخر الأخبار

Within the #السعودية_الخضراء initiative and to achieve the goals of the Kingdom's Vision 2030.

#جامعة_القصيم contributes to increasing the vegetation area within the university city and benefiting from approximately 524 thousand cubic meters of treated water to reduce the effects of desertification

Searching for sustainable solutions for Saudi Arabia

https://www.timeshighereducation.com/hub/p/searching-sustainable-solutions-saudi-arabia [6]

Researchers at Qassim University are using the latest technologies to find sustainable power sources and environmentally friendly water management techniques

From turning date palm tree waste into renewable energy to harnessing the power of the sun, Qassim University is on a mission to find sustainable power solutions.

Investigating sustainable developments in energy, water and environmental engineering is one of the university's 10 priorities, set out in its 2020 to 2024 research strategy.

Sustainable technologies are crucial in Saudi Arabia, where wastewater, municipal and construction waste and air pollution pose environmental threats. The Saudi Vision 2030 has set a target to power half the country with renewable resources by 2030.

Qassim University is working on a host of solutions, from sludge management and waste recycling to sea and groundwater desalination.

One notable project, led by Professor Sulaiman Alyahya, is examining how this waste from date palm trees can be transformed into renewable energy.

The central Al-Qassim province has more than 8 million date palm trees. The trees produce a large amount of agricultural waste including dry leaves, stems and seeds. "A quarter of the date palm is waste and many of the farmers burn that waste, which of course produces CO2 emissions and harms the environment," says Alyahya. "We are really concentrating on how to convert this waste to energy."

An international group of researchers, including scientists from Iowa State University, is investigating how the latest technologies can turn the waste into renewable energy forms like biomass, bio-oil and biogas.

The researchers are using the new technique of autothermal pyrolysis, developed by Iowa State University's Bioeconomy Institute. The process is simpler and cheaper than conventional pyrolysis and does not require an external energy source.

"If we achieve this goal to convert the waste of date palms into energy, Saudi Arabia will have a reduction of almost 8,000 tonnes of CO2 emissions," says Alyahya. "We will stop burning the waste of agriculture and at the same time create richer products."

Solar power research is another focus for Qassim University. Dr Muhannad Alaraj, an assistant professor in the university's Department of Electrical Engineering, is exploring how photovoltaic panels can transform light into power.

"We are investigating the economic effectiveness of PV panels in the Al-Qassim region. We're also studying the effect and forecasting for those PV panels and we currently have a small PV system from which we are collecting the data," says Alaraj.

"We have to consider the weather conditions and meteorological parameters. This is really important because in our region we have mostly sunny days, but sometimes there are sandstorms or clouds. We are trying to see the effect of this weather on PV panels. This will be really helpful to build a model to predict or estimate how much power or energy we will get from this PV panel each day."

As one of the world's most water-scarce nations, Saudi Arabia also needs innovative ideas for renewable water sources.

Dr Saleem AlSaleem, from the College of Engineering, is working on water and wastewater treatment, such as greywater treatment and using solar energy to treat saline water. His team is also developing solutions for solid waste management and tackling noise pollution.

AlSaleem is a member of the university's Sustainable Development Centre, which oversees Qassim's progress in its sustainability initiatives. The centre runs four greening projects, focusing on the curriculum, the campus, research and the university as an organisation.

AlSaleem and his colleagues say collaborating within and outside the university is important for a successful research project. Qassim's scientific research deanship has launched a number of international cooporation grants and encourages faculty members to apply. "We can improve our work by encouraging collaboration," says AlSaleem. "I am working with water companies and municipalities inside Saudi Arabia, and we also collaborate with researchers outside the country. For example, I am working with one professor in Malaysia and another in Italy."

The university's future research into sustainable developments will be boosted by a recently announced research chair for artificial intelligence. The chair will fund studies into AI across the university, including in agriculture and engineering.

"I'm currently working with five teams to see the role artificial intelligence can play in agriculture and renewable energy," says Alyahya.

His Excellency the Rector inaugurates the First International Conference on the Sustainability of Natural Resources

https://qu.edu.sa/content/news/1531 [7]

H.E. Prof. Dr. Abdulrahman bin Hamad Al-Daoud, Rector of the University, stressed that achieving environmental sustainability is one of the most important pillars of the Kingdom's Vision 2030, in order to raise the efficiency of waste management and reduce pollution, as the Kingdom as an active member of the international system, especially in the Group of Twenty, which seeks to achieve the United Nations goals of sustainable development, pointing out that the issue of waste management is linked to a number of UN goals, including industry, innovation, infrastructure, sustainable cities, sustainable production and consumption, as well as reducing climate change.

This came during the patronage of His Excellency the Rector of the University, for the First International Conference on the Sustainability of Natural Resources: Sustainable Management of Solid Waste, which began on Tuesday morning, 8/3/1441 AH, and which is organized by the Faculty of Engineering at the University and the Center for Sustainable Development, at the headquarters of the main lobby in the University City for men, and for women in the theater of the Faculty of Economics and Management, over two days with the participation of 36 speakers to cover all the axes and objectives of this scientific meeting, which aims to discuss the necessary measures to transform into sustainable food systems.

Al-Daoud added that the university seeks to achieve sustainability through its centers, research and scientists, through a system of integration and cooperation between its units, educational and research programs, thanking the sponsors of the conference, the Qassim Municipality, and all contributing sectors inside and outside the university.

His Excellency the Rector also inaugurated the exhibition accompanying the conference, in which 6 government and private entities participate, including a corner for the Qassim Municipality, a corner for the College of Engineering, a corner for the Center for Sustainable Development, a corner for the City Cement Company, the Cleaning Machinery Factory Company Ltd., and the Fahad Company, and witnessed the signing ceremony of a memorandum of cooperation between the Faculty of Engineering at the University and the City Cement Company.

For his part, the Chairman of the Organizing Committee of the Conference, Prof. Dr. Khalid Bani Al-Harbi, Vice President for Planning, Development and Quality, spoke about the importance of this conference, which comes in harmony with the University's sense of its strategic role in the Kingdom in general and in the region in particular, and as an embodiment of the aspirations of the Kingdom emanating from its Vision 2030, which gave great importance to the economic fields and the areas of quality of life, pointing out that the University has adopted a number of academic activities to embody this role, the most important of which is this type of scientific meetings, in addition to supporting research in This field and the inclusion of sustainability concepts in the courses of academic programs, and recently the launch of the sustainable university project supervised by His Excellency the Rector of the University and under the patronage of His Royal Highness Prince Dr. Faisal bin Meshaal bin Saud bin Abdulaziz, Amir of the region.

Al-Harbi added that the Organizing Committee has held more than 12 lengthy meetings to prepare for the conference, while the meetings of the other executive committees exceeded more than 30 working meetings, 19 of which were for the Scientific Committee, and the working hours of the preparatory team amounted to more than 150 working hours, and the working group included more than 36 members, and this work resulted in the participation of more than 15 countries with 168 participants, and more than 120 scientific papers were arbitrated.

Al-Harbi explained that the organizing committee and those in charge of this conference, which is dedicated to sustainability concept and research through participants and interested parties, decided that the conference should go beyond this to be sustainable even with an organizational printer, offering thanks and appreciation to partners for success represented by the strategic partner City Cement Company, the silver sponsor Al-Fahad Company, the supporting sponsor of the Qassim Municipality, and the parties cooperating with the conference, which comes at the forefront of which is the Ministry of Environment, Water and Agriculture represented by the Environment Agency and the Ministry's branch in the region represented by His Excellency Eng. Salman Al-Suwaina, as well as The General Directorate of Education in the region is represented by His Excellency Mr. Saleh Al-Jasser for their constructive cooperation to make this conference a success.

After that, the Dean of the Faculty of Engineering, Dr. Meshal bin Ibrahim Al-Mushaiqah, said that the Faculty of Engineering at the University attaches great importance to the topics of sustainability of natural resources for their specialized nature, to be one of the most important arms of the University to achieve this lofty purpose next to the relevant specialized authorities from colleges and other units, the most important of which is the Center for Sustainable Development at the University, as a partner in the organization and incubator of the conference with the College in the establishment of this qualitative international forum.

He pointed out that the conference aims to show the size of natural and economic resources wasted and estimate the environmental cost of waste, as well as discuss the necessary measures to transform into sustainable food systems where waste is reduced and food waste is reduced, in addition to stimulating integration between partners from different disciplines to manage waste in a sustainable manner, studying opportunities to stimulate investment in the development of waste recycling technologies in the Kingdom, and studying the obstacles to investment in the field of waste manufacturing industries, through several axes discussed by the conference, namely: Effective management, valued food and responsible citizen, attractive and ambitious investment, and a cohesive team to protect and sustain the environment.

The organizers of the conference seek to contribute to the preparation of a vision on sustainable solid waste management at the national and global level, through the participation of a number of experts,

academics and specialists from 15 countries in this field and discuss the results of the latest studies, research and scientific papers related to sustainable solid waste management through 6 sessions throughout the two days of the conference, in order to reduce the per capita consumption rates in the Kingdom of Saudi Arabia of some goods and services, which come within the highest rates globally, which increased the volume of solid waste generated, Reducing the depletion and degradation of natural resources due to high consumption rates, and transferring and localizing modern international technologies in the field of waste management in accordance with the conditions of the Kingdom.

The Dean of the College of Engineering added that the conference also seeks to address the challenges arising from waste, which is the responsibility of each member of society, raise community awareness of the risks posed by waste generation, encourage initiatives aimed at improving sustainable waste management, and provide an opportunity to exchange experiences and knowledge among specialists in waste management and sustainable development.

Hence, the speech of the sponsors was delivered by the Executive Director of City Cement, Mr. Majid bin Abdulrahman Al-Assilan, in which he stressed the existence of millions of tons of municipal waste estimated at billions of riyals, which contain organic and inorganic materials of foods and yes God love this blessed country and other materials that could have been recycled and converted into energy to achieve added value to the homeland, but unfortunately they end up in landfills, which is a kind of waste and contradicts our Islamic values and teachings. to the negative environmental impacts resulting from the backfilling of waste in the ground, some of which take more than 100 years to decompose in nature.

Al-Osailan pointed to the risks of leakage of some harmful substances from those residues to the soil and groundwater or the risk of fires, pointing out that most of the developed European countries such as Germany, the Netherlands and Belgium have a total amount of waste destined for landfills is almost zero, where no waste is backfilled and if necessary a very high fee is paid on the landfill to reduce these practices and protect the environment, by replacing the use of petroleum fuels with renewable energy and primitive fuels, offering sincere thanks and appreciation To all colleagues at the university and those in charge of this conference, for their blessed efforts and for what will contribute to achieving the directions of our wise government of raising awareness regarding the environment and sustainability, supporting coordination between the public and private sectors, and contributing to the achievement of the Kingdom's Vision 2030 to place the Kingdom in the ranks of developed countries.

For his part, the Director of the Center for Sustainable Development, Mr. Ibrahim bin Saleh Al-Rabadi, spoke about the vision of the Center for Sustainable Development at the University for sustainability through the adoption of a balanced integrated approach to achieve equitable development between regions and generations, each takes his right and each carries out his duty towards his environment, society and economy to complete the three clusters of sustainability, and sustainability addresses the issue of waste in its physical, technical, social, technical, informatics, financial and economic dimensions.

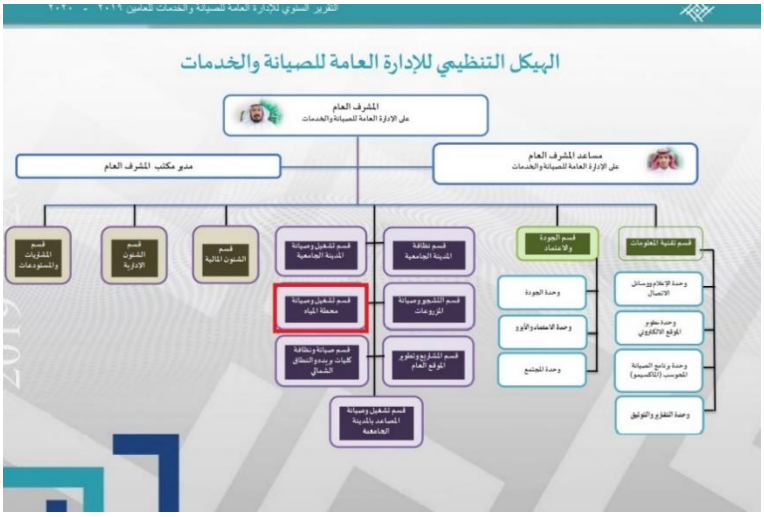
Al-Rabadi explained that waste management is linked to a number of UN goals, especially the ninth goal, which is industry, innovation and infrastructure, the eleventh goal related to sustainable cities, the twelfth goal on sustainable production and consumption, and the thirteenth goal, which is concerned with reducing climate change, and it is hoped from this conference to seek to diagnose problems accurately and develop appropriate solutions by scientists and experts gathered, and we hope that the objectives of this conference will be achieved and its recommendations translated into useful practical projects.

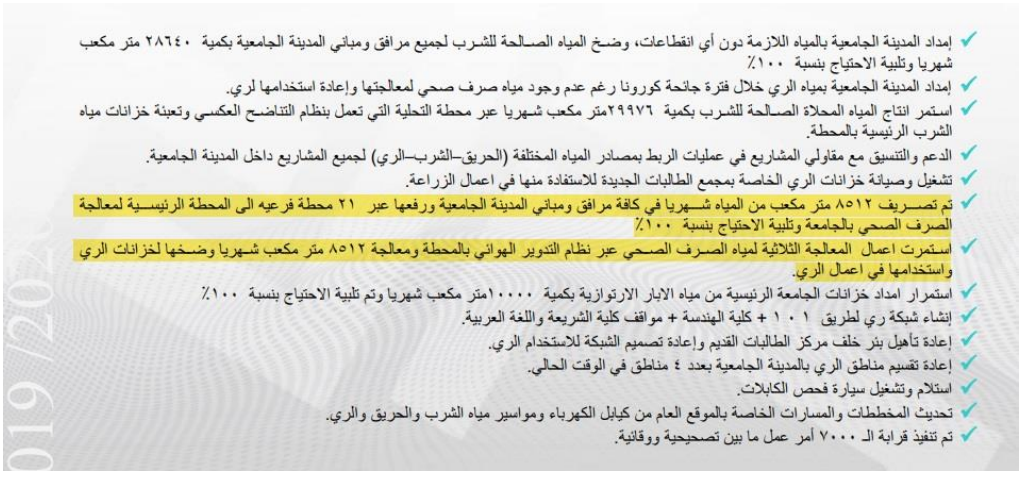
The conference witnessed the presence of the Vice President of the University, Dr. Mohammed Al-Saawi, the Vice President for Educational Affairs, Dr. Mohammed Al-Odaib, the Vice President for Graduate Studies and Scientific Research, Prof. Dr. Ahmed Al-Turki, Eng. Salman Al-Suwaina, Director of the Branch of the Ministry of Environment, Water and Agriculture in Qassim, Mr. Saleh Al-Jasser, Director of the Department of Education in the Qassim Region, Eng. Abdulmohsen Al-Faraihi, Director of the Directorate of Water in Qassim, Eng. Abdulaziz Al-Saleem, Deputy Secretary of the Qassim Region, and the deans of the faculties, faculty members and students at the University.

Annual Report

General Administration of Maintenance and Services

https://services.qu.edu.sa/laravel-filemanager/files/shares/%D8%A7%D9%84%D8%AA%D9%82%D8%B1%D9%8A%D8%B1%20%D8%A7%D9%84%D8%B3%D9%86%D9%88%D9%8A%20%D8%A7%D9%84%D8%A7%D8%AF%D8%A7%D8%B1%D8%A9%20%D8%A7%D9%84%D8%B9%D8%A7%D9%85%D8%A9%20%D9%84%D9%84%D8%B5%D9%8A%D8%A7%D9%86%D8%A9%20%D9%88%20%D8%A7%D9%84%D8%AE%D8%AF%D9%85%D8%A7%D8%AA1.pdf [8]





- 8512 cubic meters of water were discharged per month in all facilities and buildings of the University City and lifted through 21 substations to the main treatment plant University sanitation and 100% meeting the need
- The tertiary treatment of wastewater will be carried out through the plant's air circulation system and the treatment of 8512 meters per month and pumping it to irrigation tanks and use it in irrigation work.

Water Operation and Maintenance Section Tasks

https://services.qu.edu.sa/content/p/102 [9]

As shown above, the main task of the water section is the treatment of the wastewater from the bathrooms to the outside of the university, treatment of the rainwater from the roofs and balconies in the university.

This mission refers to Al Fahad Company:

Al-Fahahd Company

https://alfahhad.sa/en/Abouten [10]

Al Fahhad is one of the leading clean-ups, operating and maintenance companies, which provides a variety of services from urban cleanliness, the operation, operation and maintenance of debris and buildings.

شركة أحمد سليمان الفهاد وأولاده - مساهمة مقفلة
Ahmed Soliman Al Fahhad & Sons Co. (Closed Joint Stock)

It is one of the largest companies in Saudi Arabia that has gained the respect and trust of all partners and customers, This distinction is based on the company's interest in qualified personnel, holders of higher education degrees, and persons with experience and specialization from Saudi Arabia, who meet the Criteria for employment adopted by the ministry of Labor and official organizations.

It has always sought to gain the satisfaction of its clients through the provided services in its various projects. It encouraged them to expand their areas of activity and to engage in other industries, enterprises, financial and real estate investment and a lot of other works.

Al-Fahad receives the project of operation and maintenance of the university city at Qassim University

https://alfahhad.sa/blog?id=1211646143 [11]

Haitham Al-Jilani – Qassim Ahmed Sulaiman Al-Fahad & Sons received the work on the operation and maintenance project of Qassim University from the Arab Field Group Company on 19/04/2019, after several equipment that preceded this receipt, including the preparation of housing for technicians and engineers in the project and after taking a group of technicians on efficiency from all departments (civil, mechanics, electronics, electricity, refrigeration and air conditioning) and the company was keen to choose high competencies.

On Sunday, 30/08/1440H corresponding to 05/05/2019G, the contract was signed between Qassim University and represented by the Rector of the University, Prof. Dr. Abdulrahman bin Hamad Al-Daoud, and Ahmed Sulaiman Al-Fahad & Sons Company, a closed contribution represented by the project manager, Mr. Eng. Abdulaziz bin Abdulrahman Al-Saif. The signing of the contract was also witnessed by the Director of the Contract and the Director of the Support Services Department, as well as the presence of the honorable coordinator of projects of the health sector.

The number of employees in the contract is (290) two hundred and ninety employees, and the purpose of this contract is to carry out work (operation and maintenance of the university city of Qassim University) and this includes the provision of materials, equipment and all necessary requirements in accordance with the terms of the contract and its documents. Eng. Abdulaziz Al-Saif, Project Manager, stated that this project is one of the largest projects of the company in the field of maintenance and operation as the company is considered a leader in the field of maintenance and all fields in the

Kingdom and is considered a successful step towards working in the field of universities and education in general, wishing the success of the project and looking forward later to taking other projects at the university and outside as this is characteristic of major companies such as Al-Fahad Company. The members of the university also added their wishes for the success of the company in the project as Al-Fahad Company is one of the largest companies in the Kingdom.

Preparation of Al-Fahad Project for Operation and Maintenance at Qassim University for the academic year

https://alfahhad.sa/blog?id=652608494 [12]

Haitham Al-Jilani - Al-Qassim The operation and maintenance project at Qassim University of Ahmed Sulaiman Al-Fahad & Sons Company has prepared a closed contribution throughout the past period since the end of the study during the vacation period to receive the new academic year at Qassim University, so the company has equipped all buildings and colleges at the university and repaired any malfunctions that hinder the practice of study life. Where Al-Fahad is considered a pioneer in the field of maintenance in the Kingdom, so the malfunctions of air conditioning, electricity and mechanical works have been repaired so that the colleges and laboratories with all their equipment are equipped for the use of faculty members and students and the company does not spare any time or effort in the maintenance of systems in a manner that befits its position from what is required by maintenance and operation work as it has technicians of high efficiency and work at any time according to the requirements of work and despite the abundance of colleges and buildings at Qassim University, the company was able to receive the academic year without any Problems and thankfully the company wishes a successful academic year for all students.

Al-Fahad receives the project of operation and maintenance of the university city at Qassim University

https://alfahhad.sa/blog?id=1211646143 [13]

Haitham Al-Jilani – Qassim Ahmed Sulaiman Al-Fahad & Sons received the work on the operation and maintenance project of Qassim University from the Arab Field Group Company on 19/04/2019, after several equipment that preceded this receipt, including the preparation of housing for technicians and engineers in the project and after taking a group of technicians on efficiency from all departments (civil, mechanics, electronics, electricity, refrigeration and air conditioning) and the company was keen to choose high competencies. On Sunday, 30/08/1440H corresponding to 05/05/2019G, the contract was signed between Qassim University and represented by the Rector of the University, Prof. Dr. Abdulrahman bin Hamad Al-Daoud, and Ahmed Sulaiman Al-Fahad & Sons Company, a closed contribution represented by the project manager, Mr. Eng. Abdulaziz bin Abdulrahman Al-Saif. The signing of the contract was also witnessed by the Director of the Contract and the Director of the Support Services Department, as well as the presence of the honorable coordinator of projects of the health sector. The number of employees in the contract is (290) two hundred and ninety employees,

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Al-Daoud signs two contracts worth more than 25 million riyals for a water treatment plant and wireless network project

https://www.qu.edu.sa/content/news/891 [14]

His Excellency Prof. Dr. Abdulrahman bin Hamad Al-Dawood, Rector of the University, signed on Sunday morning, 19/9/1439 AH, two contracts for the implementation of several projects with a total value of more than 25 million riyals, and the signed contracts included the project of completing the infrastructure of wireless networks, the project of implementing the buildings of the wastewater treatment plant, and the animal waste treatment plant at the agricultural research and experiment plant. Al-Daoud signed a project to complete the infrastructure of wireless networks worth 17,742,708 million riyals with Al-Jeraisy Corporation for Computer Services, and also signed a public works project contract for the implementation of the buildings of the wastewater treatment plant and the animal waste treatment plant at the agricultural research and experiment station worth 7,899,413 million with Rakan Contracting Company. After signing the contracts, Al-Daoud stressed the need for the implementing companies and their employees to abide by the terms and conditions of the contract, to achieve the interests of both parties, and in the interest of the development of the educational process in all units of the university city and the vaus colleges.

Training course entitled (The Impact of Sediment Load on the Efficiency and Operation of Irrigation Systems - Treatment of Irrigation Water to Eliminate Sediment) in cooperation with the Agricultural Training Center in Qassim on 28/1/1440 by Dr. Ahmed Al-Zuhair

https://cavm.qu.edu.sa/content/news/1331 [15]

A training course entitled Sources of Water Pollution with Sediments, in cooperation with the Agricultural Training Center in Qassim on 27/1/1440 for Dr. Ahmed Al-Zuhairi.

https://cavm.qu.edu.sa/content/news/1330 [16]