4. INTERNATIONAL CAPPADOCIA SCIENTIFIC RESEARCH CONGRESS

April 16-17, 2023 / Nevşehir-TÜRKİYE



EDITOR

Prof. Dr. Murat TAŞ



THE PROCEEDINGS BOOK

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CONGRESS ID

CONGRESS TITLE

4. INTERNATIONAL CAPPADOCIA SCIENTIFIC RESEARCH CONGRESS

DATE and PLACE

April 16-17, 2023 / Nevşehir-TÜRKİYE

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Neslihan BALCI

NUMBER of ACCEPTED PAPERS - 351

NUMBER of REJECTED PAPERS - 30

PARTICIPANTS COUNTRY

Türkiye-167, Albania,-1 Algeria-18, Benin-1, Canada-1, Casablanca-1, Chennai-1, Ethiopia-1, Georgia-1, India-25, Indonesia-84, Iran-1, Italy-1, Maleysia-5, Morroco-8, Nigeria-10, Pakistan-12, Republic of Serbia-1, Romania-2, Rome-1, Serbia-2, Ukraine-7

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4. INTERNATIONAL CAPPADOCIA SCIENTIFIC RESEARCH CONGRESS

April 16-17, 2023 / Nevşehir-TÜRKİYE

CONGRESS PROGRAM

Meeting ID: 832 6081 0607

Passcode: 161718

https://us02web.zoom.us/j/83260810607?pwd=b1c0YWV2dTNFRmxRakc5OHY2TkxEQT09

Participant Countries: 23 countries

Türkiye, Albania, Algeria, Azerbaijan, Benin, Canada, Casablanca, Chennai, Ethiopia, Georgia, India, Indonesia, Iran, Italy, Malaysia, Morocco, Nigeria, Pakistan, Republic of Serbia, Romania, Rome, Serbia, Ukraine

(FACE TO FACE)

Session 1 / Hall-1

DATE: 16.04.2023

Venue: *Göreme Belediyesi*

Moderator: Assist. Prof. Dr. Nuri NALBANTOĞLU

Ankara Local Time: 13:00 – 15:00

TITLE	AUTHOR(S)	AFFILIATION
COMMUNICATION PROCESSES BETWEEN ACTOR, DIRECTOR, WRITER AND AUDIENCE	*Assist. Prof. Dr. Nuri NALBANTOĞLU*	Trabzon University
A PARTY BUREAUCRAT IN "NATIONAL MUSIC" DISCUSSIONS IN MULTI-PARTY ERA: GRAND NATIONAL ASSEMBLY OF TURKEY BURSA DEPUTY MUHITTIN BAHA PARS (1945-1950)	*Lect. Dr. Esra ÇETIN*	Aydın Adnan Menderes University
MUSIC IN TURKEY ACCORDING TO ADNAN SAYGUN'S 1943 REPORT	*Assoc. Prof. Dr. Osman Kubilay GÜL* *Lect. Nilay YANALAK KARASU*	Sivas Cumhuriyet University
EVALUATION OF THE TRAINING PROGRAM OF TRAINERS PREPARED TO INCREASE THE EFFICIENCY OF EDUCATION IN PUBLIC EDUCATION CENTERS	*Mehmet YILDIRIM* *Prof. Dr. Semra DEMİR BAŞARAN*	Erciyes University
THE RELATIONSHIPS BETWEEN ACADEMIC ACHIEVEMENT, ACADEMIC SELF ESTEEM AND ATTITUDE: A META – ANALYSIS STUDY	*Fatma ÖZTÜRK GÜLER*	Gazi University
CARTOONS IN VALUES EDUCATION: THE CASE OF DORU	*Dr. Merve ŞEPITCI SARIBAŞ*	--

(FACE TO FACE)

Session 1 / Hall-2

DATE: 16.04.2023

Venue: *Göreme Belediyesi*

Moderator: Assoc. Prof. Dr. Orhan KANDEMİR

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
EFFECT OF HIGH TEMPERATURE ON NORMAL CONCRETE CONTAINING RECYCLED GEOPOLYMER AGGREGATES	*Sayed Ahmad ANIS* *Assoc. Prof. Dr. Rıza POLAT*	Ataturk University
MORPHOLOGICAL AND ELEMENTAL ANALYZES OF THE LEAF AND STEM OF EQUISETUM ARVENSE PLANT BY SCANNING ELECTRON MICROSCOPY	*Şule BARAN* *Sarah ALAZZAWI* *Alican SEMERCI* *Arif BARAN*	Sakarya University
A NEW RECORD OF ORIBATID MITE FOR TURKISH FAUNA	*Şule BARAN*	Sakarya University
THE IMPACT OF THE EPIDEMIC ON ECONOMIC AND SOCIAL DISCONTENT (DIVORCE AND SUICIDE)	*Assoc. Prof. Dr. Orhan KANDEMİR*	Kastamonu University
THE EFFECT OF EDUCATIONAL EXPENDITURES FROM MAIN EXPENDITURE GROUPS ON INFLATION CASE OF TURKEY: 2013-2022 TIME SERIES ANALYSIS	*Erkan POYRAZ* *Göksel BACAKLIOĞLU*	Mugla Sitki Kocman University
PRESIDENT CELAL BAYAR'S TRIP TO THE UNITED STATES OF AMERICA AND ITS REFLECTION IN THE AMERICAN PRESS	*Prof. Dr. Dilşen İNCE ERDOĞAN 182*	Dokuz Eylül University

(ONLINE)

Session 1 / Hall-1

DATE: 16.04.2023

Moderator:

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
CHANGES IN SOME MORPHOLOGICAL AND CHEMICAL TRAITS OF DIFFERENT FODDER PEA (PISUM ARVENSE L.) CULTIVARS IN RELATION TO TIME AND ABOVE-GROUND BIOMASS	*İbrahim AVKIRA* *Ertan ATEŞ*	Tekirdag Namık Kemal University
IDENTIFICATION OF SOME LICHENIZED FUNGI SPECIES FROM HORSESHOE ISLAND (ANTARCTIC PENINSULA, ANTARCTICA) BY ANATOMICAL, MORPHOLOGICAL AND MOLECULAR METHODS	*Merve KAHRAMAN YİĞİT* *Mehmet Gökhan HALICI*	Erciyes University
TWO SIMILAR Tetramelas Norman SPECIES FROM ANTARCTICA: Tetramelas anisomerus (Vain.) Elix AND Tetramelas granulosus (Darb.) A. Nordin	*Merve KAHRAMAN YİĞİT* *Mehmet Gökhan HALICI*	Erciyes University
SOME PHYSICAL, CHEMICAL AND ANTIOXSIDANT PROPARTIES OF A KIND OF OLIVE COLLED ARBEQUINA AND ITS OIL WHICH HAS GROWN IN ŞANLIURFA	*ALİ ÖZKUL* *Assoc. Prof. Dr. Ebru SAKAR*	Harran University
ACOUSTIC SENSORS, A SMART TECHNOLOGY IN AGRICULTURE	*Birce Beliz HAMUT*	Aydın Adnan Menderes University
EVALUATION OF COSTS FOR BIOGAS AND BIOMETHANE PRODUCTION	*Dr. Cahit GÜNGÖR* *Prof. Dr. Hasan Hüseyin ÖZTÜRK*	Cukurova University
EVALUATION OF RAW MATERIALS SUPPLY COSTS IN BIOFUEL PRODUCTION	*Dr. Cahit GÜNGÖR* *Prof. Dr. Hasan Hüseyin ÖZTÜRK*	Cukurova University
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Session 1 / Hall-2

DATE: 16.04.2023

Moderator: Res. Asssit. Dr. Salih GÜRBÜZ

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
IS UNEMPLOYMENT HYSTERESIS HYPOTHESIS VALID IN TURKEY? AN EMPIRICAL ANALYSIS FOR THE PERIOD 1991-2021	*Prof. Dr. Ahmet Yılmaz ATA* *Tuğçe DALLI*	Kahramanmaras Sutcu Imam University
PROHIBITED ACTIVITIES IN TAX LAW	*Prof. Dr. Zeynep ARIKAN* *Res. Asssit. Dr. Salih GÜRBÜZ*	Dokuz Eylül University
A LITERATURE REVIEW ON THE EXAMINATION OF THE LEVEL OF UNCERTAINTY AT DIFFERENT DEVELOPMENTAL STAGES	*Prof. Dr. Nagihan OĞUZ DURAN* *Res. Asst. Bilgenur ARPAĞ*	Bursa Uludağ University İstanbul Okan University
INVESTIGATION OF INTOLERANCE OF UNCERTAINTY LEVELS OF HIGH SCHOOL STUDENTS IN TERMS OF GENDER AND GRADE LEVEL	*Prof. Dr. Nagihan OĞUZ DURAN* *Res. Asst. Bilgenur ARPAĞ*	Bursa Uludağ University İstanbul Okan University
A REVIEW OF STUDIES INVESTIGATING THE EFFECTS OF MINDFULNESS-BASED APPROACHES ON ANXIETY	*Assoc. Prof. Dr. Hatice Zekavet KABASAKAL* *Yağmur MUMCU*	Dokuz Eylul University
EXAMINATION OF THE STUDIES CARRIED OUT FOR FAMILY EDUCATION IN SPECIAL EDUCATION	*Assoc. Prof. Dr. Zekavet KABASAKAL* *Melek SOLMAZ*	Dokuz Eylul University
INVESTIGATING RELATIONSHIP BETWEEN QUALITY OF ONLINE DATING AND PSYCHO-SOCIAL VARIABLES WITH STRUCTURAL EQUATION MODELING ON EMERGING ADULTHOOD	*Hazal ŞİMŞEK ÖZKAN* *Prof. Dr. Diğdem Müge SİYEZ*	Dokuz Eylul University
THE CONCEPTUAL CORRECTION: THE REAL BASIS OF THE GENDER PHENOMENON	*Assist. Prof. Dr. Emine KEF*	Amasya University
A SOCIOLOGICAL STUDY ON WOMEN PARTICIPATING IN THE LABOR FORCE: THE CASE OF NEVSEHIR KAYMAKLI TOWN	*Hayrettin KARADENIZ* *Rabia KELLAHLI*	Giresun University
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Session 1 / Hall-3

DATE: 16.04.2023

Moderator: Assist. Prof. Dr. Mustafa ÇAM

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
PRODUCTION OF SHIKONIN IN VITRO CONDITIONS	*Assoc. Prof. Cennet YAMAN*	Yozgat Bozok University
DIGITALIS SPECIES AND THEIR CARDIAC GLYCOSIDE CONTENTS IN TÜRKİYE	*Assoc. Prof. Cennet YAMAN*	Yozgat Bozok University
Anomalous BEHAVIORS IN CATS AND DOGS IN HATAY REGION AFTER THE EARTHQUAKE	*Assist. Prof. Dr. Yavuzkan PAKSOY* *Duygu ARSLAN*	Necmettin Erbakan University Alpha Vet Veterinary Practice
EFFECT OF OZONE THERAPY ON HEALING OF SKIN BURNS	*Res. Assist. Nevzat Emre ASLAN* *Assoc. Prof. Dr. Hanifi EROL*	Yozgat Bozok University Erciyes Üniversitesi
A MACROANATOMIC STUDY ON NERVUS PHRENICUS OF AKSARAY MALAKLI DOG	*Zekeriya ÖZÜDOĞRU* *Ramazan İLGÜN* *Muhammet Alperen FİDAN*	Balikesir University
MORPHOLOGICAL EVALUATIONS OF THE FUNCTIONAL ANATOMY OF THE SPHINCTER OF ODDI IN ANIMAL SPECIES	*Ramazan İLGÜN* *Zekeriya ÖZÜDOĞRU* *Muhammet Alperen FİDAN*	Balikesir University
COMPARISON OF THE EGG PRODUCTION CURVE OF CHUKAR PARTRIDGES (ALECTORIS CHUKAR) WITH NON-LINEAR MODELS AND ARTIFICIAL NEURAL NETWORKS (ANN)	*Dr. Eyüp BAŞER* *Dr. Serdar GÜLER* *Assist. Prof. Dr. Mustafa ÇAM*	Bahri Dağdaş International Agricultural Research Institute Selcuk University

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Session 1 / Hall-4

DATE: 16.04.2023

Moderator: SAMİRA

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
INVESTIGATION OF PESTICIDE RESIDUE IN SOME COMMON VEGETABLES: ESTIMATION OF THEIR IMPACT ON HUMAN HEALTH	*Dr Mahmood Ahmed*	University of Education
QUANTITATIVE STRUCTURE ACTIVITY RELATIONSHIP (QSAR) INVESTIGATIONS AND MOLECULAR DOCKING ANALYSIS OF PLASMODIUM PROTEIN FARNESYLTRANSFERASE INHIBITORS AS POTENT ANTIMALARIAL AGENTS	*Chennai Yassmine* *Ouassaf Mebarka*	University of Biskra
IN SILICO INVESTIGATION OF SEVERAL SERIES OF HETEROCYCLIC MOLECULES FOR DRUG DISCOVERY	*Prof. Dr. Salah BELAIDI* *Dr. Yassmine CHENNAI*	Mohamed Khaidhar University
RELATION ON REDUCING AGENTS ON THE THERMAL INSULATION AND PHOTODEGRADATION IN WATER POLLUTANTS COMPOUNDS BY BINARY MnO2/ZnO CATALYST	*Mohd Rashid Yusof Hamid* *Mohd Azam Mohd Adnan* *Phoon Bao Lee* *Mohd Imran Hilmi* *Mohd Shamsul Busnak* *Nurhidayatullaili Muhd Julkapli*	University of Malaya University of Selangor
MODILING of IZTO/β-Ga2O3 SCHOTTKY PHOTODETECTORS BY SILVACO-ATLAS	*Dr. Rima CHERROUN* *Prof. Dr. Afak MEFTAH*	Mohamed Khider University
EVALUATION OF ANTIMICROBIAL ACTIVITY OF Fe(II) AND Co(II) COMPLEXES WITH SCHIFF BASE; 2-HYDROXY-BENZALIDENE-1-NAPHTHYLAMINE	*Ibrahim Kani Aminu*	Bayero University Kano
PHYSICOCHEMICAL PROPERTIES OF FARIN GADA VEGETABLE FARMLAND	*J D Dodo, Shittu Abubakar Muhammad, Ushie Onumashi Afi* *Ansar Bilyamin Adam* *Abdullahi Jabir Abubakar* *Ishaq Abubakar* *Aminu Ado Kaugama*	University of Jos Federal University
PROXIMATE ANALYSIS OF CARROT AND CABBAGE CULTIVATED AT FARIN GADA FARMLAND	*J D Dodo, Shittu Abubakar Muhammad ,* *Ushie Onumashi Afi* *Ansar Bilyamin Adam* *Abdullahi Jabir Abubakar* *Ishaq Abubakar* *Aminu Ado Kaugama*	University of Jos Federal University
PHOTOMETRIC AND FLUOROMETRIC REAGENTS AS FUNCTIONALIZED COMPOUNDS IN MODERN METHODS OF CHEMICAL ANALYSIS	*Prof. Dr. Serghey A. Shapovalov*	V N. Karazin Kharkiv National University

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Session 1 / Hall-5

DATE: 16.04.2023

Moderator: Dr. Fouzia Benoudjit

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
GREEN SYNTHESIZED PHYTOCHEMICALLY (ZINGIBER OFFICINALE AND ALLIUM SATIVUM) REDUCED NICKEL OXIDE NANOPARTICLES CONFIRMED BACTERICIDAL AND CATALYTIC POTENTIAL	*Ali Haider*	Shareef University
HOSTS OF BOUFAROUA OLIGONYCHUS AFRASIATICUS (McGregor) FROM WEEDS PLANTS IN THE BISKRA OASIS-ALGERIA	*DEGHICHE-DIAB Nacima* *NIA Bilel* *BENOUAMAN Ourida* *ZGUEROU Roukiya* *ROUMANI Messaoud* *M'HANI Mokhtar* *REKIS AbdelKarim*	CRSTRA
AUXILLARY DIVERSITY UNDER GREENHOUSES IN THE ZIBAN REGION	*DEGHICHE-DIAB Nacima* *BETTICHE Farida* *BENGOUGA Khalila* *FADHLAOUI Haroun*	CRSTRA
USE OF BIOTECHNOLOGY TO CREATE NEW VARIETIES OF PLANTS	*Daria KOVTUN* *Sergiy LAVRENKO*	Kherson State Agrarian and Economic University
IMPACT OF COVID-19 ON THE AGRICULTURAL INDUSTRY IN THE WORLD	*Mariia RIZAK* *Sergiy LAVRENKO*	Kherson State Agrarian and Economic University
PHYTOCHEMICAL STUDY, NUTRITIVE VALUE AND ANTIOXIDANT ACTIVITY OF PHENOLIC EXTRACTS FROM DESERT PLANT LIMONIASTRUM GUYONIANUM DUR	*Fatma ALIA* *Yacine BOURAS* *Khaoula SEGUENI* *Anis BEN ALI*	University of El Oued
CONTRIBUTION TO THE PHYSICOCHEMICAL EVALUATION OF A LOCAL AROMATIC PLANT ESSENTIAL OIL EXTRACTED FROM SALVIA SPIECES	*Dr. Fouzia Benoudjit* *Rania Sabrine Bouabdallah*	M'hamed Bougara University
EFFECT OF DIFFERENT SALICYLIC ACID DOSES ON KOBER 5 BB GRAPEVINE ROOTSTOCK IN VITRO DROUGHT STRESS CONDITIONS	*Assoc. Prof. Hatice Bilir EKBIC* *Research Assistant Mert İLHAN*	Ordu University
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Session 1 / Hall-6

DATE: 16.04.2023

Moderator: Dr. Ivan PAVLOVIC

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
THE RELATIONSHIP BETWEEN THE ACTION OF ERADICATE MOSQUITO NEST (PSN) WITH THE PRESENCE OF AEDES AEGYPTI LARVAE IN BAKUNG VILLAGE BIRINGKANAYA DISTRICT MAKASSAR CITY	*Dr. Erniwati Ibrahim SKM, M.Kes*	Hasanuddin University
THE GUT-BRAIN-SKIN AXIS IN ACNE: IMPACT OF POLENODERM	*Major Gheorghe Giurgiu Prof. Dr. Manole Cojocaru*	Titu Maiorescu University
DISCOVERY NEW ANTI-SLEEP DISORDERS AGENTS USING DRUG LIKNESS, ADMET AND MOLECULAR DOCKING DYNAMICS STUDIES	*Khaoula Mkhayar Souad Elkhattabi Samir Chtita*	Sidi Mohamed Ben Abdellah-Fez University
STUDY TO ASSESS THE EFFECTIVENESS OF SIMULATION TECHNIQUE TO OVERCOME MISPERCEPTIONS OF UNDERGRADUATE NURSING STUDENTS' ABOUT PAEDIATRIC PALLIATIVE CARE	*Meryem Hamdoune Abdellah Gantare*	Hassan First University of Settat
REGULATORY PATHWAY OF MEDICAL DEVICES IN UNITED STATES OF AMERICA	*Assoc. Prof. Natesh Gunturu Assoc. Prof. Dr. Balamurali Dhara V Dr. Adepu Ramesh*	JSS College
EFFECT OF OCIMUM TENUIFLORUM AND LEPIDIUM MEYENII HERBAL EXTRACT IN THE MANAGEMENT OF POLYCYSTIC OVARIAN SYNDROME IN RAT MODEL	*Faryal Gohar Usman Haider Wania Nasir Muhammad Naeem Faisal*	Government College University University of Agriculture Faisalabad
ERLICHIOSIS OF PET DOGS IN BELGRADE AREA	*Dr. Ivan PAVLOVIC Vladimir TERZIN Vlada ANTIC Igor UCAJEV*	Veterinary Ambulance Pet&Vet Terzin
STATUS, THREATS AND CONSERVATION OF WHITE-BACKED AND LONG-BILLED VULTURES IN INDIA: A REVIEW	*Vidya PADMAKUMAR Murugan SHANTHAKUMAR*	Bangalore University
PREVALENCE OF HELMINTHIASIS IN CATTLE IN WEST MUNA REGENCY SOUTHEAST SULAWESI IN 2022	*Farra Sasmita Wa Ode Umrawati Latif*	Sulawesi Tenggara University

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Session 2 / Hall-1

DATE: 16.04.2023

Moderator: Prof. Dr. Murat TAŞ

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
DEVELOPMENT OF EMPIRICAL MODELS THAT CAN BE USED FOR ESTIMATING EVAPORATION FROM THE CLASS-A PAN EVAPORIMETER	*Assist. Prof. Dr. Selçuk Usta*	Van Yüzüncü Yıl University
PRECIPITATION WATER RECYCLING COST ANALYSIS: KAYSERI UNIVERSITY 15 JULY CAMPUS EXAMPLE	*Lect. Dr. İbrahim BEKTAŞ*	Kayseri University
THE EFFECT OF GROUND FLOOR HEIGHT CHANGE ON EARTHQUAKE CHARACTERISTICS IN LOW AND MULTI-STOREY REINFORCED CONCRETE FRAMED BUILDINGS	*Anıl EKŞI* *Kadir ÖZELCI* *Betül Elba USTA* *Burak YAMAN* *Esin ŞAHIN* *Assoc. Prof. Dr. Yurdakul AYGÖRMEZ*	Yıldız Technical University
PREDICTION OF COMPRESSIVE STRENGTH OF LIGHTWEIGHT SELF-COMPACTING CONCRETE USING GAUSSIAN PROCESS REGRESSION	*Merve AÇIKGENÇ ULAŞ*	Fırat University
EVALUATION OF AIR POLLUTANT PARAMETERS WITH THE OPEN SOURCE R OPENAIR PACKAGE	*Res. Assst. Dr. Özer AKYÜREK*	Kocaeli Üniversitesi
THE DEVELOPMENT PROCESS OF THE HOUSING ARCHITECTURE IN ANKARA SCALE 1960 – 2022 AND THE USE OF WOOD	*Cüneyt AKINCI* *Prof. Dr. Hamza ÇINAR*	Gazi University
REVIEW OF REBUILDING OF HOUSES IN THE CONTEXT OF LEGISLATION, PROCESS, AND FINANCE	*Burcu KARA* *Prof. Dr. Nilay COŞGUN*	Gebze Technical University
INVESTIGATION OF SUSTAINABILITY CRITERIA IN ACCOMMODATION STRUCTURES WITHIN THE SCOPE OF TOURISM ORGANIZATIONS	*Burcu BOYRAZ* *Prof. Dr. Z. Özlem PARLAK BİÇER*	Erciyes University
COMPARISON OF LEED AND GSB CERTIFICATION SYSTEMS THROUGH THE CASE OF BAHRİYE ÜÇOK KINDERGARTEN	*Feyza Nur ÇIMEN* *Prof. Dr. Murat TAŞ* *Prof. Dr. Nilüfer TAŞ*	Bursa Uludag University
BASIC APPLICATIONS OF METAVERSE FOR WOMEN IN HEALTH SECTOR	*Res. Assist. Sevim SARISOY* *Assoc. Prof. Dr. Nilüfer TUĞUT* *Goyarchin MEHDİYEVA*	Sivas Cumhuriyet University
ALTERNATIVE TREATMENT METHODS USED TO REDUCE MENOPOSAL COMPLAINTS IN WOMEN	*Goyarchin MEHDİYEVA* *Assoc. Prof. Dr. Nilüfer TUĞUT* *Res. Assist. Sevim SARISOY*	Sivas Cumhuriyet University

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Session 2 / Hall-2

DATE: 16.04.2023

Moderator: Assoc. Prof. Dr. Fatma ATEŞ

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
EATING HUMAN MEAT AND CANNIBALISM IN THE KYRGYZ AND KAZAKH TALES	*Assoc. Prof. Dr. Fatma ATEŞ*	Kütahya Dumlupinar University
CRITICISM/ GRIEVANCE IN ÂŞIK FERRAHI'S POEMS	*Assoc. Prof. Dr. Fatma ATEŞ*	Kütahya Dumlupinar University
WORDS MEANING POPLAR IN HISTORICAL TURKISH LANGUAGE TEXTS AND THE CULTURAL ASPECTS OF THESE NAMES	*Res. Assst. Dr. Banu GÜZELDEREN*	Akdeniz University
CLOTHING AND ATTIRE IN THE HAREM OF AHMED EFENDI, THE SECRET SCRIBE OF SELIM III (AN EXAMPLE OF A TAILOR'S NOTEBOOK)	*Dr. Şükriye Pınar ÖZYALVAÇ*	Necmettin Erbakan University
APPROACHES TO POLYPHONY IN HAKAN ALI TOKER'S WORKS	*Assist. Prof. Dr. Filiz YILDIZ* *Lect. Muzaffer Soner YILMAZ*	Afyon Kocatepe University Çanakkale Onsekiz Mart University
GULSEHIR AND ELEMENTS OF FOLK CULTURE	*Assoc. Prof. Dr. G. Filiz ÖNAL*	Gazi University
INVESTIGATION OF THE EFFECT OF INSTRUCTIONAL DESIGN STUDY FOR THE DEVELOPMENT OF ADULT EDUCATION SKILLS ON MASTER TEACHERS	*Nazif TÜRKMEN*	Kocasinan Public Education Center
XII. PERIOD (1961-1964) ADANA DEPUTIES' DISCOURSES ON THE 1960 MILITARY COUP AND THEIR CONTRIBUTION TO ADANA'S DEMOCRATIC LIFE	*Zeynep ERGEN ÖZDAĞ*	Nevsehir HBV University
PRESIDENT CELAL BAYAR'S TRIP TO THE UNITED STATES OF AMERICA AND ITS REFLECTION IN THE AMERICAN PRESS	*Prof. Dr. Dilşen İNCE ERDOĞAN*	Dokuz Eylül University

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(ONLINE)

Session 2 / Hall-3

DATE: 16.04.2023

Moderator: Prof. Dr. Özlem OVAYOLU

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
EVALUATION OF THE RELATIONSHIP OF 25 OH VIT D LEVELS WITH PRESSURE PAIN THRESHOLD, DISABILITY AND GRIP STRENGTH IN PATIENTS WITH FIBROMYALGIA	*Selin AKIL AĞDERE* *Assoc. Prof. Dr. Esra PEHLİVAN* *Ezgi KAT* *Nazlı HELVACI* *Prof. Alev KURAL* *Prof. Meltem VURAL*	University of Health Sciences Bakirkoy Dr. Sadi Konuk Training and Research Hospital
THE EFFECT OF TELEREHABILITATION BASED AEROBIC EXERCISE ON THE CLINICAL CONDITIONS OF PATIENTS WITH FIBROMYALGIA	*Selin AKIL AĞDERE* *Assoc. Prof. Dr. Esra PEHLİVAN* *Ezgi KAT* *Nazlı HELVACI* *Prof. Alev KURAL* *Prof. Meltem VURAL*	University of Health Sciences Bakirkoy Dr. Sadi Konuk Training and Research Hospital
EXAMINING THESES ON HEALTH LITERACY IN TURKEY	*Assist. Prof. Dr. Ayşegül TURAN* *Res. Assist. Nagihan Merve SÖYLEMEZ* *Zaynab ABDI JIMALE*	Kirsehir Ahi Evran University
FEAR OF FEEDING QUESTIONNAIRE - PARENT REPORT OF THE DEVELOPMENT, VALIDITY AND RELIABILITY	*Rabia YEŞİLKUŞ* *Assoc. Prof. Dr. Selen SEREL-ARSLAN*	Hacettepe University
CURRENT BEHAVIORAL APPROACH: SLEEP HYGIENE	*Assist. Prof. Dr. Sibel SERÇE* *Assist. Prof. Dr. Sema AYTAÇ* *Prof. Dr. Özlem OVAYOLU*	Gaziantep University
HOPE THERAPY IN CHRONIC DISEASES	*Assist. Prof. Dr. Sibel SERÇE* *Assist. Prof. Dr. Sema AYTAÇ* *Prof. Dr. Özlem OVAYOLU*	Gaziantep University
THE ROLE OF THE NURSE IN PREVENTIVE THERAPY FROM TUBERCULOSIS	*Assist. Prof. Dr. Sema AYTAÇ* *Assist. Prof. Dr. Sibel SERÇE* *Prof. Dr. Özlem OVAYOLU*	Gaziantep University
SLEEP DISORDERS IN PATIENTS WITH TYPE 2 DIABETES	*Assist. Prof. Dr. Sema AYTAÇ* *Assist. Prof. Dr. Sibel SERÇE* *Prof. Dr. Özlem OVAYOLU*	Gaziantep University
USING THE SURGICAL SAFETY CHECKLIST IN SURGICAL PATIENT SAFETY	*Res. Assist. Sema KONATEKE* *Res. Assist. Pervin KÖKSEL*	Gaziantep University Sivas Cumhuriyet University
PATIENT AND EMPLOYEE SAFETY PROBLEM IN OPERATING ROOM: RADIATION EXPOSURE	*Res. Assist. Sema KONATEKE* *Res. Assist. Pervin KÖKSEL*	Gaziantep University Sivas Cumhuriyet University
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(ONLINE)

Session 2 / Hall-4

DATE: 16.04.2023

Moderator: Zohaib Hassan Sain

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
BETWEEN SCIENTIFIC EVIDENCE AND PRACTICAL EXPERIENCE. THE DIFFICULT PATH OF IMPLEMENTATION OF CITIZENSHIP INCOME IN RELATION TO THE COVID-19 EMERGENCY: A NEW CHALLENGE TO PROFESSIONAL SOCIAL WORK IN ITALY	*Carlotta Antonelli*	University of Rome
THE OVERVIEW OF PROBLEMS LEARNED IN HIGHER EDUCATION INSTITUIONS IN PAKISTAN	*Zohaib Hassan Sain*	Superior University
STUDENTS ASSESSMENT OF ONLINE EDUCATION DURING THE COVID-19 EPIDEMIC: AN ANALYSIS	*Zohaib Hassan Sain*	Superior University
RESPONSABILITE SOCIETALE ET RESPECT DES MESURES ENVIRONNEMENTALES SUR LES CHANTIERS DE CONSTRUCTION DES INFRASTRUCTURES TOURISTIQUES DANS LA VILLE DE OUIDAH (BENIN)	*Pamphile HOUNDJI*	Université d'Abomey-Calavi
BIOECONOMY: BUILDING A NEW ECONOMIC MODEL	*Olena BUDIAKOVA*	Kyiv National University
INFLUENCE OF PRICE BY CONSUMER BUYING BEHAVIOUR IN THE AUTOMOBILE INDUSTRY IN CHENNAI	*R. Jayashree* *Assoc. Prof. Dr. Ramya Thiyagarajan*	Bharath Institute of Higher Education and Research
THE IMPACT OF THE RUSSIAN-UKRAINE INVASION ON THE REACTION OF ASEAN STOCK MARKETS	*Rahma Sofia Nida* *Farichatun Nafsi* *Alya Rizka Amelia Putri*	Islam IAIN
AI APPLICATIONS IN MARKETING: A LITERATURE-BASED STUDY	*Assist. Prof. Dr. Altuğ OCAK*	Beykent University
EXPLORING THE ROLE OF DESTINATION FAMILIARITY ON FLOW EXPERIENCE	*Assist. Prof. Dr. Sezer KARASAKAL*	Antalya Bilim University
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(ONLINE)

Session 2 / Hall-5

DATE: 16.04.2023

Moderator: Ayu PERMATASARI

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
PERILAKU KONSUMEN TERHADAP BELANJA ONLINE	*IEDA RIZQI RACHMAWATI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
FACTORS AFFECTING THE MILLENNIAL GENERATION IN INDONESIA DIGITAL-BASED INVESTMENT	*Ayu PERMATASARI* *Hendri Hermawan ADİNUGRAHA* *Ali MUHTAROM* *SUSMININGSIH*	UIN KH. Abdurrahman Wahid Pekalongan
CREATIVITY AND INNOVATION	*Ilyas SANJAYA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
IMPACT OF THE 4.0 INDUSTRIAL REVOLUTION FROM THE POINT OF ACCOUNTING PROFESSION	*KAMAEDI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
EFFECTIVENESS OF ACCOUNTING SYSTEMS IN FINANCIAL REPORTS FOR VILLAGE FUND MANAGEMENT (CASE STUDY OF KARANGDOWO VILLAGE)	*KHORISATUL AMANAH* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
CAPITAL MARKET	*Emiliana RACHMA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
SHARE	*Emiliana RACHMA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
PURPOSE OF HUMAN LIFE	*Muhammad Ulil ALBAB* *Hendri Hermawan ADİNUGRAHA* *TAMAMUDIN*	UIN KH. Abdurrahman Wahid Pekalongan
THE ECONOMY DURING THE KHULAFAURRASYIDIN ERA	*FIFI MAULANI* *ELIZATUNNISA* *Hendri Hermawan ADINUGRAHA* *HAPPY SISTA DEVY*	UIN KH. Abdurrahman Wahid Pekalongan
CONSUMPTION ETHICS IN ISLAM	*Susi Eka APRILIANI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
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Session 2 / Hall-6

DATE: 16.04.2023

Moderator: Prof. Dr. R. Srinivasan

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
AGROBACTERIUM MEDIATED GENE TRANSFER OF CT-B ANTIGEN IN TRANSGENIC CALLUS CULTURE OF BANANA SP.	*Prof. Dr. R. Saravanan*	Bharath Institute of Higher Education and Research
HERBAL MEDICINES AND THEIR BIOACTIVE METABOLITES AS POTENTIAL ANTICANCER AGENTS	*Assoc. Prof. R.Jothi Lakshmi* *Prof. Dr. R. Srinivasan* *R.Devi, S.Kalaivanan*	Bharath Institute of Higher Education and Research
DEVELOPING SMART NANO BIOSENSORS FOR MONITORING FOOD SAFETY	*Sriram. R* *Assoc. Prof. R.Devi* *Prof. Dr. R. Srinivasan* *Parthasarathi.V* *Mohamed Ashik Ali.M*	Bharath Institute of Higher Education and Research
NIGELLA SATIVA (KALONJI SEEDS) FOR BOOSTING THE IMMUNE SYSTEM	*S.Kalaivanan* *Prof. Dr. R. Srinivasan* *Assoc. Prof. R.Devi* *Assoc. Prof. R. Jothilakshmi*	Bharath Institute of Higher Education and Research
ETHNOPHARMACOLOGICAL RESPONSES TO THE CORONAVIRUS DISEASES 2019 PANDEMIC	*K. Pushparaj, R. JothiLakshmi* *Prof. Dr. R. Srinivasan* *R.Devi, S.Kalaivanan* *R.Selvakumar*	Bharath Institute of Higher Education and Research
CHALLENGES AND LIMITATIONS OF REPURPOSING DRUGS FOR COVID-19	*K. Pushparaj, R. JothiLakshmi* *Prof. Dr. R. Srinivasan* *Assoc. Prof. R.Devi* *Assoc. Prof. M.Vasanthkumar* *R.Selvakumar*	Bharath Institute of Higher Education and Research
SUSTAINABLE SYNTHESIS OF NANOPARTICLES IN MICROFLUIDIC DEVICES	*Parthasarathi, R.Devi* *Prof. Dr. R. Srinivasan* *Sriram. R* *Mohamed Ashik Ali.M*	Bharath Institute of Higher Education and Research
THERAPEUTIC ROLE OF AZADIRACHTA INDICA (NEEM) AND THEIR ACTIVE CONSTITUENTS IN DISEASES PREVENTION AND TREATMENT	*R. Selvakumar, R. Jothi lakshmi* *Prof. Dr. R. Srinivasan* *Assoc. Prof. R.Devi* *K. Pushparaj*	Bharath Institute of Higher Education and Research
ARTIFICIAL INTELLIGENCE-BASED OPTIMIZATION FOR CHITOSAN NANOPARTICLES BIOSYNTHESIS, CHARACTERIZATION AND IN – VITRO ASSESSMENT OF ITS ANTI – BIOFILM POTENTIALITY	*A.Sreesivasakthi* *Assoc. Prof. R.Devi* *Prof. Dr. R. Srinivasan* *E.Sam David* *A.Dhavamanikandan*	Bharath Institute of Higher Education and Research
A COMPREHENSIVE REVIEW ON LIPOSOMES: A NOVEL DRUG DELIVERY SYSTEM	*Lect. SS. Shadhika* *Assoc. Prof. R.Devi* *Prof. Dr. R. Srinivasan*	Bharath Institute of Higher Education and Research

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Session 3 / Hall-1

DATE: 16.04.2023

Moderator: Prof. Dr. Mehmet ATÇEKEN

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
INVESTIGATION OF STRUCTURAL, ELECTRONIC, ELASTIC, THERMODYNAMIC AND ELECTRONIC PROPERTIES OF TiFeBi HEUSLER ALLOYS BY DENSİTY FUNCTİON THEORY	*Asst. Prof. Erol ALBAYRAK*	Kırıkkale University
3D PRINTING OF MULTI-MATERIAL PARTS	*Asst. Prof. Dr. Nergizhan ANAÇ* *Asst. Prof. Dr. Oğuz KOÇAR*	Zonguldak Bulent Ecevit University
INVESTIGATION OF PUMPING RATE FOR ELASTOMERIC ROTARY SHAFT SEALS	*Dr. Barış ENGİN* *Prof. Dr. Murat YAZICI*	Uludağ University
RESEARCHING OF JOINING STAINLESS STEEL AND COPPER MATERIALS WITH BRAZING	*Furkan ÖZDEMİR* *Prof. Dr. Behçet GÜLENÇ*	Gazi University
SMALL SCALE GAS TURBINE ENGINE TURBINE DESIGN AND ANALYSIS	*Yusuf Sergen TAŞCI* *Asst. Prof. Dr. Selim TANGÖZ*	Erciyes University
IMPROVING ADHESION OF 3D PRINTING ON VARIOUS FABRICS BY CLAY/PLA COATING	*Ecehan Aygül GÖNÜL* *Birgül BENLI*	Istanbul Technical University
A BEST PROXIMITY POINT RESULT FOR CYCLIC MAPPINGS	*Mustafa ASLANTAS* *Hakan SAHIN*	Çankırı Karatekin University Bursa Technical University
A GENERALIZATION OF FIXED POINT RESULTS ON B-METRIC SPACES	*Mustafa ASLANTAS* *Hakan SAHIN*	Çankırı Karatekin University Bursa Technical University
SOME IMPORTANT CHARACTERIZATIONS OF KENMOTSU MANIFOLDS	*Prof. Dr. Mehmet ATÇEKEN* *Assoc. Prof. Dr. Tuğba MERT*	Aksaray University Sivas Cumhuriyet University
SOME NEW FRACTIONAL INTEGRAL INEQUALITIES FOR B-CONVEX FUNCTIONS	*Ilknur Yesilce ISIK* *Sunullah KARABUDAK*	Aksaray University
GREEN-SYNTHESIZED IRON OXIDE NANOPARTICLES USING MORINGA OLEIFERA NATURAL EXTRACT FOR POTENTIAL APPLICATIONS	*Nahide Ekin SÜSLÜ* *Birgül BENLI*	Istanbul Technical University

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Session 3 / Hall-2

DATE: 16.04.2023

Moderator: Asst. Prof. Hülya ALBAYRAK

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
BABY BROUGHT TO CHILDREN'S EMERGENCY DEPARTMENT WITH COMPLAINT OF ACUTE GASTROENTERIT IN LINE WITH FAMILY CENTRED CARE: A CASE REPORT	*Lect. Bahar AKSOY* *Lect. Seda Cansu YENİĞÜN*	Akdeniz University
EVIDENCE-BASED RECOMMENDATIONS FOR THE CARE AND MANAGEMENT OF PATIENTS WITH POSTOPERATIVE STOMA	*Lect. Seda Cansu YENİĞÜN* *Lect. Bahar AKSOY*	Akdeniz University
INVESTIGATION OF POSSIBLE PROTECTIVE EFFECTS OF QUERCETIN ON VINCRISTINE-INDUCED CARDIOTOXICITY	*Assist. Prof. Dr. Nurhan AKARAS* *Prof. Dr. Fatih Mehmet KANDEMIR*	Aksaray University
MANAGEMENT OF CHRONIC DISEASES IN EARTHQUAKE	*Prof. Dr. Özlem OVAYOLU* *Hilal BENZER*	Gaziantep University
VIRTUAL REALITY APPLICATIONS IN PAIN MANAGEMENT	*Prof. Dr. Özlem OVAYOLU* *Lect. Seda İLGÜN*	Gaziantep University
EFFECTS OF MUSIC ON HEALTH	*Prof. Dr. Özlem OVAYOLU* *Gülsüm GÜLŞEN*	Gaziantep University
GENETIC COUNSELING AND ITS IMPORTANCE FOR NURSING	*Prof. Dr. Özlem OVAYOLU* *Res. Assist. Sinem BEBEK*	Gaziantep University
LATE COMPLICATIONS OF DERMAL FILLER INJECTIONS: A CASE OF DELAYED NODULES AND SCLEREDEMA	*Asst. Prof. Hülya ALBAYRAK*	Namık Kemal University
DETERMINATION OF WBGT INDEX AND NOISE EXPOSURE LEVELS IN THE POLYCLINICS OF YOZGAT BOZOK UNIVERSITY RESEARCH AND APPLICATION HOSPITAL	*Soner ÖZEN* *Derya ÖZTÜRK ÖZEN* *Ertuğrul Gazi BİLİÇ*	Yozgat Bozok University

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Session 3 / Hall-3

DATE: 16.04.2023

Moderator: Annayya Putri SABILLA

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
THE URGENCY OF USING HALAL COSMETIC PRODUCTS FOR MUSLIM CONSUMERS	*Dwi Laksmita* *Shinta Dewi Rismawati*	UIN KH. Abdurrahman Wahid Pekalongan
HALAL VALUE CHAIN: POTENSI DAN PELUANG DI INDONESIA	*Toat MUCHARIF* *Hendri Hermawan ADİNUGRAHA* *SUSMININGSIH* *Ali MUHTAROM*	UIN KH. Abdurrahman Wahid Pekalongan
PUBLIC INTEREST IN ISLAMIC BANKS	*Annayya Putri SABILLA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
SUPPORTING FACTORS AND INHIBITING FACTORS OF THE BUSTANUL MANSURIYAH ISLAMIC BOARDING SCHOOL COOPERATIVE IN IMPROVING THE WELFARE OF STUDENTS	*AS'ILLAH* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
ISLAMIC ECONOMIC REVIEW ABOUT E-MONEY	*Afidah Rozi ANTI* *Hendri Hermawan ADİNUGRAHA* *Ali MUHTAROM* *SUSMININGSIH*	UIN KH. Abdurrahman Wahid Pekalongan
CHARACTERISTICS OF BUSINESS ETHICS IN ISLAMIC	*Riska Naila ZULFA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
THE INFLUENCE OF ISLAMIC FINANCE ON ISLAMIC BANKS ON ECONOMIC GROWTH IN INDONESIA	*Najma AZIMA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
FORMS OF BUSINESS TRANSACTIONS PERMITTED AND PROHIBITED IN ISLAM	*M. Hadi ASFARI* *Hendri Hermawan ADİNUGRAHA* *Muhammad Aris SYAFI'I*	UIN KH. Abdurrahman Wahid Pekalongan
THE CONCEPT INFLATION FROM AN ISLAMIC PERSPECTIVE	*Afiyatul SAKINAH* *Hendri Hermawan ADİNUGRAHA* *Ade GUNAWAN* *Rıa Anisatus SHOLİHAH*	UIN KH. Abdurrahman Wahid Pekalongan
THE ISLAMIC PUBLIC FINANCE PRACTICES DURING THE PERIOD OF PROPHET MUHAMMAD AND KHULAFAURRASYIDDIN	*Elsa Nisaha RANİ* *Hendri Hermawan ADİNUGRAHA* *Sinta Dewi RİSMAWATİ*	UIN KH. Abdurrahman Wahid Pekalongan
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Session 3 / Hall-4

DATE: 16.04.2023

Moderator: SAMİRA

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
ANALYSIS OF MARKETING ASPECTS OF MASDA BARBERSHOPS IN MEDONO PEKALONGAN CITY	*MUHAMMAD IRZYAD ARKAN* *MUHAMMAD TAUFIQ ABADI* *MUHAMMAD SULTAN MUBAROK* *WILDA YULIA RUSYIDA*	UIN KH. Abdurrahman Wahid Pekalongan
ANALYSIS OF THE FEASIBILITY STUDY OF AZQO COLLECTION JEANS CONVECTION BUSINESS IN PUCUNG VILLAGE	*IIS NUR FAIZAH* *MUHAMMAD TAUFIQ ABADI* *MUHAMMAD SULTAN MUBAROK* *WILDA YULIA RUSYIDA*	UIN KH. Abdurrahman Wahid Pekalongan
TEMPE MAKING BUSINESS FEASIBILITY STUDY ANALYSIS (CASE STUDY ON TEMPE MAKING BUSINESS IN PASAR LAWAS VILLAGE)	*Thiflah Zakiyyah* *Muhammad Taufiq Abadi* *MUHAMMAD SULTAN MUBAROK* *WILDA YULIA RUSYIDA*	UIN KH. Abdurrahman Wahid Pekalongan
BUSINESS FEASIBILITY ANALYSIS FOR ANGKRINGAN TEMU BOLO KAJEN SQUARE	*ESTU PRAMUDITA* *Muhammad Taufiq Abadi* *MUHAMMAD SULTAN MUBAROK* *SYAMSUDDIN*	UIN KH. Abdurrahman Wahid Pekalongan
FEASIBILITY STUDY ANALYSIS OF CENTRO KAJEN FUTSAL FIELD RENTAL BUSINESS	*Muhammad Azka Fajar Mufarih* *Muhammad Taufiq Abadi*	UIN KH. Abdurrahman Wahid Pekalongan
FEASIBILITY STUDY ANALYSIS OF DIVKA SHOP FASHION BUSINESS	*Renita Diah Feby Aryadi* *Muhammad Taufiq Abadi* *MUHAMMAD SULTAN MUBAROK* *SYAMSUDDIN* *Versiandika Yudha Pratama*	UIN KH. Abdurrahman Wahid Pekalongan
BUSINESS FEASIBILITY STUDY ANALYSIS ON TOFU MSMES IN BONDANSARI VILLAGE (CASE STUDY OF PAK NUR'S TOFU BUSINESS)	*Septiana Mufidah* *Muhammad Taufiq Abadi* *MUHAMMAD SULTAN MUBAROK* *SYAMSUDDIN*	UIN KH. Abdurrahman Wahid Pekalongan
FEASIBILITY STUDY ANALYSIS OF PURING FABRIC IN PAKISPUTIH VILLAGE KEDUNGWUNI SUBDISTRICT	*LAILA AMELIYA* *Muhammad Taufiq Abadi* *MUHAMMAD SULTAN MUBAROK*	UIN KH. Abdurrahman Wahid Pekalongan
ANALYSIS OF BUSINESS KALAYAKAN STUDIES ON FILADAILY HIJAB (Marketing Aspects And Marketing Mix)	*GHINA JAZILA* *Muhammad Taufiq Abadi* *MUHAMMAD SULTAN MUBAROK*	UIN KH. Abdurrahman Wahid Pekalongan
ANALYSIS OF THE APPLICATION OF THE PRINCIPLES OF ISLAMIC BUSINESS ETHICS AT DADDY BRO COFFESHOP TULIS BATANG DISTRICT	*GHINA JAZILA*	UIN KH. Abdurrahman Wahid Pekalongan

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(ONLINE)

Session 3 / Hall-5

DATE: 16.04.2023

Moderator: Retnoria Dwi LESTARI

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
THE LAW OF DEMAND AND DERIVATION OF THE CURVE	*Saila Arzaqina* *Hendri Hermawan ADİNUGRAHA* *Muh. Khafidz Ma'shum*	UIN KH. Abdurrahman Wahid Pekalongan
FACTORS INFLUENCING THE PRICE INCREASESTAPLE	*Retnoria Dwi LESTARI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
DEFINITIONS AND CAUSES OF MENTAL DISORDERS	*Lia KHOIRINA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
CONCEPTION OF CONVENTIONAL ECONOMY AND SHARIA ECONOMY	*Wiwit ANISA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
ONLINE BUYING AND SELLING	*Arif HIDAYATULLAH* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
ONLINE SHOPPING CONSUMPTIVE BEHAVIOR IN COLLEGE STUDENTS	*Atinal Husna ADİNİA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
FACTORS CAUSING THE GLOBAL ECONOMIC RECESSION IN INDONESIA	*TRI AYU WIDYASTUTI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
STANDAR AKSESIBILITAS WEB TERHADAP BELANJA ONLINE	*IEDA RIZQI RACHMAWATI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
THE DEVELOPMENT OF RICE IMPORTS IN INDONESIA	*Nailatul ADWIYAH* *Hendri Hermawan ADİNUGRAHA* *Ade GUNAWAN* *Rıa Anisatus SHOLİHAH*	UIN KH. Abdurrahman Wahid Pekalongan

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Session 3 / Hall-6

DATE: 16.04.2023

Moderator: Dr. Shaheen Naz

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
DESIGN AND FABRICATION OF WHEAT STRAW PRESSING MACHINE	*Rehman khan* *Hasnain Saleem*	Swedish College of Engineering and Technology Wah
ENHANCING EVAPORATIVE COOLING WITH INDEPENDENT DEHUMIDIFICATION	*Shekh Abdullah* *Shadab Alam* *Mohd Nashrul Bin Mohd Zubir* *Mohd Ridha Bin Muhamad* *Kazi MD. Salim Newaz*	University of Malaya
BACTERIOLOGICAL QUALITY ASSESSMENT OF COMMONLY USED COSMETIC BRANDS IN KADUNA METROPOLIS, KADUNA, NIGERIA	*Shitu, S.* *Salihu, K. N.* *Shehu, I.*	College of Science and Technology Federal University Dutsin-Ma
INFLUENCE OF CONCENTRATION ON THE ELECTRICAL AND OPTICAL PROPERTIES OF MG DOPED COPPER OXIDE PREPARED BY SOL-GEL TECHNIQUE	*Maria nor elyakin boumezrag* *K. ALMI* *Said lakel*	University of Biskra
DYEING OF COTTON FABRIC WITH AZADIRACHTA INDICA EXTRACT	*Shahid Adeel* *Nimra Amin* *Fazal-ur-Rehman* *Meral Ozomay*	Government College University Faisalabad Marmara University
THREAT ANALYSIS AND MITIGATION STRATEGIES AND FRAMEWORKS TO REDUCE HUMAN LOSS DUE TO MALWARE	*Saptadeepa Kalita*	Sharda University
PERFORMANCE ANALYSIS OF MIMO DETECTION ALGORITHMS FOR WIRELESS COMMUNICATION SYSTEM	*Ahmed Ali Elmi* *Dr. Shaheen Naz*	Sharda University
CHARACTERIZING THE ELECTRICAL BEHAVIOR OF THIN-LAYER POLYETHYLENE TEREPHTHALATE USING THE DPS METHOD	*Karima SMILI* *Oualid CHIBANE* *Azzedine DEKHAN* *Lazhar HEROUZ*	Laboratoire électromécanique université Badji Mokhtar
QUANTIFYING ELECTRIC CHARGE DEPOSITION ON PET PLATES USING SURFACE CORONA DISCHARGE ANALYSIS	*Karima SMILI* *Oualid CHIBANE* *Azzedine DEKHAN* *Lazhar HEROUZ*	Laboratoire électromécanique université Badji Mokhtar
A REVIEW ON VIRTUAL SMART ENERGY METERS	*ILBOUDO Mouniratou* *Dr. T. Jaya CHITRA* *Dr. Suman LATA*	Sharda University
MQL AND DRY ENVIRONMENTS EFFECTS ON SURFACE ROUGHNESS DURING TURNING OF AISI 52100 STEEL	Chaima Souaidi	Badji Mokhtar University

All participants must join the conference 10 minutes before the session time.
Every presentation should last not longer than 10-12 minutes.
Kindly keep your cameras on till the end of the session.

(ONLINE)

Session 1 / Hall-1

DATE: 17.04.2023

Moderator: Assoc. Prof. Dr. Mücahit BORA

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
CONSERVATION OF CHRISTIANSFELD, A MORAVIAN CHURCH SETTLEMENT WORLD MODERN HERITAGE	*Assist. Prof. Dr. Aylin ŞENTÜRK* *Zehra Nur AKÇAY*	İstanbul Ticaret Univercity
EYES IN ANATOLIAN EVIL OBJECTS FROM TERRA COTTA TO BLUE GLASS BEADS	*Assoc. Prof. Dr. Serap ÜNAL*	Suleyman Demirel University
MISCONCEPTIONS ABOUT DESIGN ELEMENTS AND PRINCIPLES IN VISUAL ARTS	*Assoc. Prof. Dr. Mücahit BORA*	Dokuz Eylül University
ASSESSMENTS ON DAVID MORENO'S ARCHITECTURAL SCULPTURES	*Assoc. Prof. Dr. Zeliha KAYAHAN* *Assoc. Prof. Dr. Naile ÇEVİK*	Ankara Haci Bayram Veli University
READINGS ON YAYOI KUSAMA'S CREATIVE ATTITUDE WITHIN TECHNOLOGY ART COLLABORATION	*Assoc. Prof. Dr. Zeliha KAYAHAN* *Assoc. Prof. Dr. Naile ÇEVİK*	Ankara Haci Bayram Veli University
INCLUSIVE DESIGN PRACTICES IN MUSEUMS	*Seval YILMAZ*	Nigde Omer Halisdemir University
INTERPRETATION OF HISTORICAL RELIGIOUS BUILDINGS IN NIGDE AKTAS (ANDAVAL) VILLAGE AS MEMORY SPACES	*Asst. Prof. Dr. İlknur ACAR ATA*	Nigde Omer Halisdemir University
THE EFFECTS OF CLOTHING COMFORT ON CLOTHING DESIGN IN MEN'S FASHION	*Beyzanur ERDAL* *Hüseyin Cem ÜSTÜN* *Umut KAYA*	Hatemoğlu
MOVING DESIGNS IN THE CLOTHING INDUSTRY TO THE DIGITAL ENVIRONMENT	*Beyzanur ERDAL* *Hüseyin Cem ÜSTÜN*	Hatemoğlu
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(ONLINE)

Session 1 / Hall-2

DATE: 17.04.2023

Moderator: Ayla ARSLAN

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
SYNTHESIS OF METAL OXIDE CATALYSTS AND INVESTIGATION OF THEIR ELECTROCATALYTIC BEHAVIOR PERFORMANCE IN HYDROGEN PRODUCTION	*İlayda KARAMAN* *Dr. Karolina KORDEK-KHALIL* *Assoc. Prof. Bilge COSKUNER FILIZ* *Prof. Dr. Aysel KANTURK FIGEN*	Yildiz Technical University
OPTIMIZATION OF ULTRASOUND-ASSISTED EXTRACTION OF PHENOLIC COMPOUNDS FROM KULTIK KERNEL USING CHOLINE CHLORIDE: ETHYLENE GLYCEROL	*Çağlar Mert AYDIN*	Munzur University
INVESTIGATION OF CHANGES IN TOTAL PHENOLIC CONTENT AND ANTIOXIDANT ACTIVITY OF THE WALNUT VARIETY CULTIVATED IN OVACIK DISTRICT OF TUNCELI BY YEAR	*Çağlar Mert AYDIN*	Munzur University
ENVIRONMENTALLY FRIENDLY DYEING OF WASTE CELLULOSE FIBER WITH NATURAL DYE EXTRACT OBTAINED FROM WALNUT SHELL (JUGLANS REGIA)	*Sude Sara KAYA* *Derya DOĞRU* *Shahid ADEEL* *Meral ÖZOMAY* *Zafer ÖZOMAY*	Government College University Marmara University
INVESTIGATION OF SONOCHEMICAL TREATMENT OF TELON RED MGWN TEXTILE DYE	*Elif TEKMAN* *Eylem TOPKAYA* *Mustafa Alperen KURT* *Ayla ARSLAN*	University of Kocaeli
PROPERTIES, CLASSIFICATION, DETECTION AND REMOVAL METHODS OF MICROPLASTICS	*Sinem KURU* *Ayla ARSLAN*	University of Kocaeli
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(ONLINE)

Session 1 / Hall-3

DATE: 17.04.2023

Moderator: Prof. Dr. Fatma ÜNAL

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
TOXIC MACROFUNGI AND AMANITA FUNGUS POISONING	*Hatice AKARSLAN ELİTOK* *Prof. Celaleddin ÖZTÜRK*	Selcuk University
AGAR CULTURE METHODS IN MYXOMYCETES	*Dr. Öğr. Üyesi Gönül EROĞLU*	Selcuk University
THE EFFECT OF D-SORBITOL, A SWEETENER ADDITIVE IN FOOD, ON SISTER CHROMATID EXCHANGE IN HUMAN PERIPHERAL LYMPHOCYTES	*Büşra GÜNEŞ* *Prof. Dr. Deniz YÜZBAŞIOĞLU* *Assoc. Prof. Dr. Sevcan MAMUR* *Prof. Dr. Fatma ÜNAL*	Gazi University
MINIMAL PROCESSING TECHNOLOGIES IN SEAFOOD PROCESSING INDUSTRY	*Can Okan ALTAN*	Sinop University
PROBIOITIC OR POTENTIAL PROBIOTIC YEASTS FOUND IN THE FLORA OF FERMENTED FOODS	*Halil İbrahim KAHVE*	Aksaray University
USE OF CAULIFLOWER POWDER IN THE PRODUCTION OF GLUTEN-FREE AND REGULAR CREAKERS	*İleyda BAYRAKCI* *Res. Assist. Dr. Tekmile CANKURTARAN KÖMÜRCÜ* *Prof. Dr. Nermin BİLGİÇLİ*	Necmettin Erbakan University
PRE, POST AND PARA CONCEPTIONS OF PROBIOTICS	*Lec. Dr. Yusuf ESEN* *Res. Assist. Pınar ŞEKERCİ KELEŞ*	Ardahan University
EVALUATION OF UNTREATED, GERMINATED AND FERMENTED ANCIENT WHEAT IN CAKE PRODUCTION	*Hacer CEYLAN* *Res. Assist. Dr. Tekmile CANKURTARAN KÖMÜRCÜ* *Prof. Dr. Nermin BİLGİÇLİ*	Necmettin Erbakan University
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(ONLINE)

Session 1 / Hall-4

DATE: 17.04.2023

Moderator: Dr. Id ouaziz Saida

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
ON THE 4-NACCI SEQUENCES OF FINITELY GENERATED GROUPS H_m	*Mina Pirzadeh* *Mansour Hashemi*	University of Guilan
PREDICTION BASED MEAN-VALUE-AT-RISK PORTFOLIO OPTIMIZATION USING MACHINE LEARNING REGRESSION ALGORITHMS FOR MULTI-NATIONAL STOCK MARKETS	*Jyotirmayee Behera* *Pankaj Kumar*	SRM Institute
A COMPUTATIONAL STUDY ON COMBINED CONVECTIVE TERNARY (SWCNT-MWCNT-FE3O4) EYRING NANOLIQUID IN THE PRESENCE OF NONLINEAR THERMAL RADIATION: AN ENTROPY ANALYSIS	*H. F. Shankar*	MVJ College of Engineering
DISCREET MATHEMATICAL MODELING AND OPTIMAL CONTROL OF A CORRUPTION MODEL	*Dr. Id ouaziz Saida* *Prof. Dr. EL Khomssi Mohammed*	Sidi Mohamed Ben Abdellah University
SUSTAINABILITY ANALYSIS OF SENGON TREES (ALBIZIA CHINENSIS) IN LOMBOK ISLAND WITH HARVESTING MATRIX	*Mamika Ujianita Romdhini* *Alhassan Yakubu Abare*	Universitas Mataram University of Maiduguri
EFFECT OF THERMAL RADIATION AND CHEMICAL REACTION ON MAGNETO HYDRODYNAMICS FLOW OF BLOOD IN STRETCHING PERMEABLE VESSEL	*Dr. Binyam Zigta*	Wachemo University
EXISTENCE OF SEVERAL 1:1 ENTRAINMENT REGIONS IN THE ARNOLD ONION DIAGRAM	*Aisha Azmat*	Kohat University
A SOLAR CELL THIN FILM INVESTIGATION, BY USING SIMULATION OF THE EFFECTS OF ABSORBED LAYER THINNES ON SOLAR ENERGY EFFECIENCY	*Fahd Elmourabit* *Said Dlimi* *Fatima Id Ouissaaden* *Abdelaziz Khoukh*	Chouaïb Doukkali University
EVALUATION OF QCD SUM RULES FOR CONVENTIONAL VECTOR STRANGE STATES 1^3S_1, 2^3S_1, AND 3^3S_1	*Merve TEMIZER* *Hayriye SUNDU* *Jale Y. SÜNGÜ* *Elşen Veli VELIEV*	University of Kocaeli Istanbul Medeniyet University

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(ONLINE)

Session 1 / Hall-5

DATE: 17.04.2023

Moderator: Sanja D. Mijajlović

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
THE VIEWS OF 8th GRADE STUDENTS' ON THE USE OF INTERNET INFORMATION NETWORKS (EBA, MORPA CAMPUS, OKULISTIK) in SCIENCE COURSE	*Emine AKKAŞ BAYSAL* *İjlal OCAK*	Afyon Kocatepe University
PROMOTING THE PIVOTAL ROLE OF TEACHERS IN FACILITATING STUDENTS' ONLINE LEARNING ABOUT THE PROS AND CONS OF 21ST-CENTURY EDUCATIONAL SYSTEMS	*Fr. Baiju Thomas*	Ramakrishna Mission Vivekananda Educational and Research Institute
OPINIONS OF GIFTED STUDENTS ON PARENTAL SUPPORT IN THE PROCESS OF HIGH SCHOOL EDUCATION	*Nedeljko M. Milanović* *Sanja D. Mijajlović*	University of Kragujevac
ELT IN NIGERIA: IMPACT OF COMPUTER ASSISTED LANGUAGE LEARNING ON LEARNING ENGLISH IN SELECTED SCHOOLS IN OBIO/AKPOR, RIVER STATE	*Joseph Onyema Ahaotu* *Chioma Abigail Uche-Okanume*	University of Port Harcourt
A BIBLIOMETRIC ANALYSIS OF STUDIES ON MARINE TOURISM USING VOSVIEWER	*Assist. Prof. Dr. Oğuz DOĞAN*	Antalya Science University
ART IN THE AGE OF DIGITAL REPRODUCTION: EXPLORING THE VALUE DIMENSION	*Nemanja S. Vučković* *Milena M. Nikodijević* *Mehmed M. Slezović*	University of Novi Pazar University of Niš
PREHISTORIC INVESTIGATIONS in CENTRAL VOLCANIC CAPPADOCIA (NEVŞEHİR)	*Assist. Prof. Dr. Fevzi Volkan GÜNGÖRDÜ*	Nevsehir Hac Bektas Veli University
ETHNIC AND TRIBAL BIGOTERY; THE BANE OF NIGEIAN EFFORTS AT DEMOCRATIZATION	*Joseph Chinedu Ofobuike*	Nnamdi Azikiwe University
ASSESSMENT OF PSYCHOLOGICAL WELL-BEING IN PEOPLE AFFECTED BY REVERSE MIGRATION: IMPLICATIONS FOR ENTREPRENEURSHIP DEVELOPMENT	*Savi Bahuguna* *Dr.Garima*	IMS Unison University
NATURE WALK: FINDING HARMONY WITH MOTHER EARTH THROUGH INTERACTION WITH OUR SURROUNDINGS	*Nur Farah Fahtiah Adzrul* *Natalia Jaikoh Alexander* *Noah Fletcher Albert* *Nur Afiqa Amani* *Muhd Safwan Sajani* *Amman Hidayat*	Psychology and Counselling Unit

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(ONLINE)

Session 1 / Hall-6

DATE: 17.04.2023

Moderator: SAMİRA

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 10:00 – 12:00

TITLE	AUTHOR(S)	AFFILIATION
TOURISM ATTRACTION CREATIVE ECONOMY DEVELOPMENT BASED ON LOCAL WISDOM	*Rinda Laila NURFATIHA* *Hendri Hermawan ADINUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
AFTER THE PANDEMIC AND THE CHANGE OF STYLE BUY	*Meike Ardhana RESWARI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
EFFORTS OF THE INDONESIAN NATION IN FACING THE THREAT OF GLOBAL RECESSION	*TRI AYU WIDYASTUTI* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
ARRAYYAN LAUNDRY BUSINESS STRATEGY TO SURVIVE IN THE PANDEMI TIME	*MUNINGGAR* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
STRATEGIES FOR SURVIVING A PANDEMIC	*Nur Khofidotul KHASANAH* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
CHALLENGES OF SHARIA INSURANCE IN INDONESIA	*M. FAUZI* *Hendri Hermawan ADİNUGRAHA* *Ali MUHTAROM* *SUSMININGSIH*	UIN KH. Abdurrahman Wahid Pekalongan
FACTORS THAT CAUSE INFLATION	*Elma NURKHANIFAH* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
STEP IN REALIZING REFORESTATION AND AFFORESTATION EFFORTS	*Syasi Tri ANISA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
THE LINK BETWEEN REFORESTATION AND AFFORESTATION WITH PEOPLE'S WELFARE	*Syasi Tri ANISA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
THE EFFECT OF SCIENCE AND TECHNOLOGY PROGRESS ON ECONOMIC DEVELOPMENT	*Nafisah Asnal Muna* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
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(ONLINE)

Session 2 / Hall-1

DATE: 17.04.2023

Moderator: Assist. Prof. Dr. Reyhan BAHAR

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
EVALUATION OF THE FINANCIAL STRUCTURE OF ACCOMMODATION BUSINESSES WITH THE MARCOS METHOD: EVIDENCE FROM BORSA ISTANBUL (BIST)	*Assist. Prof. Dr. Yahya SÖNMEZ*	---
ANALYSING CONSUMER COMMENTS ON E-COMMERCE WEBSITES USING TEXT MINING METHODS	*Elif UZUN* *Murat UÇAR*	İskenderun Technical University
INVESTIGATION OF THE DEVELOPING ROLE OF AI IN MARKETING MANAGEMENT	*Assist. Prof. Dr. Reyhan BAHAR*	Bandirma Onyedi Eylul University
ACCOUNTING MANIPULATION PRACTICES: EXAMINING WITHIN THE CONCEPTUAL FRAMEWORK	*Birol KOLCU*	Nevsehir Haci Bektas Veli University
A COMPARISON OF TRADITIONAL COSTING METHOD AND ACTIVITY-BASED COSTING METHOD: IMPLEMENTATION IN A FOUNDATION UNIVERSITY	*Res. Assist. Dr. Fatma ARSLAN*	Hakkari University
A COMPARISON OF MARKOWITZ MEAN VARIANCE MODEL AND ELTON-GRUBER-PADBERG'S MODEL IN OPTIMAL PORTFOLIO SELECTION: BIST 100 APPLICATION	*Res. Assist. Dr. Fatma ARSLAN*	Hakkari University
THE EFFECT OF PSYCHOLOGICAL CAPITAL ON BURNOUT: THE MEDIATING ROLE OF LIFE SATISFACTION	*Assist. Prof. Dr. Durmuş GÖKKAYA* *Mesut KARAMAN*	Yozgat Bozok University
DETERMINANTS OF HOUSEHOLD ENERGY EXPENDITURE IN TURKEY: QUANTILE REGRESSION APPROACH	*Çiler SİGEZE*	Çukurova University
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(ONLINE)

Session 2 / Hall-2

DATE: 17.04.2023

Moderator: Neslihan BALCI

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
OPTIMIZING A BUSINESS'S ENERGY NEEDS USING WIND TURBINE, PV PANEL, GENERATOR AND BATTERY	*Ahmet AY* *Ercan İZGI*	Yıldız Technical University
MODELING OF THE PROTOTYPE TEMPLATE APPARATUS FOR THE CORRECT FITTING OF THE SOCKET EYE ARRANGEMENT	*İslam ŞAHİN* *Ali DEMİR*	Nursan Kablo Donanımları San. ve Tic.A.Ş
DESIGN AND PROTOTYPE MODELING OF THE APPARATUS FOR INSTALLING THE TIGHTNING PLUG IN THE SOCKETS	*İslam ŞAHİN* *Ali DEMİR*	Nursan Kablo Donanımları San. ve Tic.A.Ş
ELECTRIC DOOR LOCK ACCESS WITH VISUAL PASSWORD USING RASPBERRY PI	*Alperen ŞENYİĞİT* *Mustafa Can SEÇGİN* *Reşat ÇAYHAN* *Assoc. Prof. Dr. Hasan Serhan YAVUZ*	Eskisehir Osmangazi University
RECYCLING STUDIES IN Si-BASED SOLAR CELLS	*Neslihan FIRAT* *Melih MANIR* *Göksel AYTEMIZ* *Vagif NEVRUZOĞLU*	Recep Tayyip Erdogan University
ELECTRONIC PROPERTIES of MONOLAYER PtSe2 USING AB INITIO CALCULATIONS	*Emre BÖLEN* *Engin DELIGÖZ* *Hacı ÖZIŞIK*	Aksaray University
EVALUATION OF ASYMMETRIC CRYPTOGRAPHY ALGORITHMS IN TERMS OF PERFORMANCE ANALYSIS	*Res. Assist. Alev KAYA* *Prof. Dr. İbrahim TÜRKOĞLU*	Firat University
WITH DEEP LEARNING NETWORKS CLASSIFICATION OF THREE-DIMENSIONAL OBJECTS	*Enes İNANÇ* *Prof. Dr. Tamer ÖLMEZ*	Istanbul Technical University
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(ONLINE)

Session 2 / Hall-3

DATE: 17.04.2023

Moderator: Assoc. Prof. Dr. Emre BASKAN

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
INTRATUMORAL MICROBIOME: A POTENTIAL TARGET IN CANCER THERAPIES	*Mehmet MEMİŞ* *Sinan BAYRAM* *Ali Savaş BÜLBÜL*	Bayburt University
INVESTIGATION OF THE RELATIONSHIP BETWEEN FUNCTIONAL DISABILITY LEVEL, HEAD POSTURE AND UPPER EXTREMITY FUNCTIONS IN PATIENTS WITH CHRONIC STROKE: A PILOT STUDY	*Aziz DENGİZ* *Assoc. Prof. Dr. Emre BASKAN*	Mus Alparslan University
INVESTIGATION OF THE RELATIONSHIP BETWEEN FATIGUE, PAIN AND FALLING IN INDIVIDUALS WITH STROKE	*Aziz DENGİZ* *Assoc. Prof. Dr. Emre BASKAN* *Assist. Prof. Güzin KARA ÇAKICI*	Mus Alparslan University Pamukkale University
PLACE AND SIGNIFICANCE OF ANIMAL EXPERIMENTS IN NURSING RESEARCH	*Prof. Dr. Özlem OVAYOLU* *Lect. Devran AYYILDIZ*	Gaziantep University
THE IMPORTANCE OF PRENATAL GENETIC COUNSELING IN PREGNANCY	*Çiler ÇOKAN DÖNMEZ*	Cukurova University
NEUROPATHY OF THE SUPRASCAPULAR NERVE SPINOGLENOID NOTCH GANGLION CYST IS THE CAUSE	*Bünyamin KORKMAZ*	Aksaray and Research Hospital
RADIX ENTOMOLARIS, RADIX PARAMOLARIS PREVALENCE AND ITS RELATIONSHIP WITH APICAL PATHOLOGIES IN MANDIBULAR TEETH: RETROSPECTIVE CBCT ANALYSIS	*Res. Assist. Rabia ÇAYIR* *Assis. Prof. Dr. Çiğdem ŞEKER* *Assoc. Prof. Dr. Gediz GEDUK*	Zonguldak Bulent Ecevit University
ISOLATED FALLOPIAN TUBE TORSION: CASE REPORT	*Res. Assist. Utku Berkay AKALIN*	Ahi Evran University
A RARELY CASE: RUPTURED ECTOPIC PREGNANCY WITH CONTRALATERAL RUPTURED OVARIAN CYST	*Aybuke TAYARER*	Ahi Evran University

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(ONLINE)

Session 2 / Hall-4

DATE: 17.04.2023

Moderator: Neslihan BALCI

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
GIS AND REMOTE CONTRIBUTION TO THE SEDIMENTOLOGICAL AND GEOMINERAL STUDY OF THE BENGUERIR PHOSPHATE	*Dr. EL KHOUNAIJRI Hayat* *Prof. Dr. ALGOUTI Ahmed* *Prof. Dr. ALGOUTI Abdellah* *Prof. Dr. ESSEMANI Mohammed* *Dr. Toudamrini Hanane* *Dr. Nafouri Imane*	Cadi Ayyad University
SYNTHESIS OF SILVER OXIDE/GRAPHENE OXIDE NANOCOMPOSITE FOR THE DEGRADATION OF ACEPHATE PESTICIDE	*Atta ul Haq* *Ghulam Baqar*	Government College University
ANTIUREASE EFFECT OF BENZENESULFONOHYDRAZIDES, IN VITRO AND IN SILICO STUDIES	*Dr. Mahmood Ahmed*	University of Education
PHOTO-ACTIVE HYDROXYAPATITE CLAMSHELL DERIVATIVES FOR REDUCTION OF METHYL ORANGE WATER POLLUTANTS	*Anis Liyana Azhar* *Azman Ma'amor* *Nurhidayatullaili Muhd Julkapli*	Universiti Malaya
PHOTOMETRIC AND FLUOROMETRIC REAGENTS AS FUNCTIONALIZED COMPOUNDS IN MODERN METHODS OF CHEMICAL ANALYSIS	*Serghey A. Shapovalov*	V. N. Karazin Kharkiv National University
MOLECULAR DOCKING AND COMPUTATIONAL STUDY OF THE STRUCTURE- ACTIVITY RELATIONSHIP IN NEW COMPOUNDS	*Fattouche Maroua* *Belaidi Salah* *Abchir Oussama* *Chtita Samir*	University of Biskra
PRESENCE OF ALKALOIDS AND ANTIMALARIAL ACTIVITY OF THE EXTRACT OF LEAVES OF PSIDIUM GUAJAVA, MANGOFERA INDICA LINN AND GUIERA SENEGALENSIS	*Dr Hadiza Aminu Isah*	Nigerian Defence Academy
INSIGHTS INTO THE CHARGE CARRIER DYNAMICS AND ANOMALOUS BEHAVIOR IN A DIELECTRIC MATERIAL	*Adil Chakir* *Boubker Mehdaoui* *Abdeslam El Bouari*	Hassan II University of Casablanca
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Session 2 / Hall-5

DATE: 17.04.2023

Moderator: Dr. Valentina Noemi Madia

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
AN ECO-FRIENDLY APPROACH OF CONSTRUCTED WETLANDS FOR REMOVING PHARMACEUTICAL COMPOUNDS FROM HOSPITAL WASTEWATER	*Zeba Ali Mumtaj* *Abdul Rahman Khan* *Saimah Khan*	Integral University
OBTAINING A DRIED PECTIN-CONTAINING PRODUCT FROM APPLES	*Husarova O.V.* *Sniezhkin Yu. F.*	University of Ukraine
DEVELOPMENT OF NEW ANTIVIRAL AGENTS ACTIVE AGAINST SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2 (SARS-CoV-2)	*Dr. Valentina Noemi Madia* *Prof. Dr. Roberta Costi* *Prof. Dr. Roberto Di Santo*	"Sapienza" University of Rome
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CHEMICAL AND BIOLOGICAL TREATMENT OF LEACHATE FROM THE TECHNICAL LANDFILL OF MASCARA	*Chahmi Gheidene Abdel Kader* *Zehhaf Abdelhafid*	University of Mustapha Stambouli Mascara
MOLECULAR DOCKING STUDY OF THE INTERACTIONS BETWEEN THE NS5B ENZYME AND ISOTHIAZOLE DERIVATIVES	*Fattouche Maroua* *Belaidi Salah* *Hochlaf Majdi* *Chtita Samir* *Abchir Oussama*	University of Biskra Hassan II University of Casablanca
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Session 2 / Hall-6

DATE: 17.04.2023

Moderator: Swarupa Rani gurram

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
OBTAINING A DRIED PECTIN-CONTAINING PRODUCT FROM APPLES	*Olena Husarova* *Yu. F. Sniezhkin*	National Technical University of Ukraine
PERSPECTIVES ON AGRICULTURE AND DIGITAL TECHNOLOGY A STUDY OF YOUNG PEOPLE IN INDONESIA	*Windy Fatmawati* *Achmad Tubagus Surur*	UIN K.H. Abdurrahman Wahid Pekalongan
EVALUATING THE EFFECT OF DIFFERENT PARTS OF PAPAYA (LEAF, FRUIT, SEED) EXTRACT IN THROMBOCYTOPENIC PATIENTS	*Muhammad Nouman* *Farhan Saeed* *Bushra Niaz* *Ammar Ahmad Khan* *Usman Naeem* *Anees Ahmad Khalil*	University of Lahore Government College University
ALTERNATIVE SYSTEM FOR DRYING OF TOMATO POMACE: CARBON FIBER ASSISTED CABIN DRIER	*Eren Deniz KONAK* *Yaren SARIDUMAN* *Deniz DÖNER* *Ömer Faruk ÇOKGEZME* *Filiz İÇIER*	Ege University
DESIGN, SYNTHESIS AND IN VITRO SCREENING OF NOVEL 2-MERCAPTOBENZOTHIAZOLE-CLUBBED PHENYLACETAMIDES AS POTENTIAL ANTIBACTERIAL AGENTS	*Swarupa Rani gurram* *Mohammed Afzal Azam*	JSS Mahavidyapeetha College
BACTERIOLOGICAL QUALITY ASSESSMENT OF COMMONLY USED COSMETIC BRANDS IN KADUNA METROPOLIS, KADUNA, NIGERIA	*Shitu, S.* *Salihu, K. N.* *Shehu, I.*	College of Science and Technology
ANTIOXIDNT, ENZYME INHIBITION AND TOXICOLOGY STUDIES OF METHANOL EXTRACTS OF SELECTED MEDICINAL PLANTS	*Hiba Shahid* *Prof. Dr. Syed Ali Raza Naqvi*	Government College University
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Session 2 / Hall-7

DATE: 17.04.2023

Moderator: Irina-Ana Drobot

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 12:30 – 14:30

TITLE	AUTHOR(S)	AFFILIATION
EXAMINING GLOBAL CLIMATE CHANGE FROM SUSTAINABLE CONSUMPTION PERSPECTIVE	*Lect. Dr. Bilge VILLI*	Balikesir University
REFLECTIONS OF THE PARADIGM CHANGE ON TURKISH PUBLIC ADMINISTRATION	*Prof. Dr. Sabit MENTEŞE*	Munzur University
SPRING TRADITIONS ALL OVER THE WORLD	*Irina-Ana Drobot*	Technical University
THE INFLUENCE OF CHURCH FATHER AND JULIAN OF NORWICH	*Ananda Majumdar*	University of Alberta
BY THE RIVERS OF BABYLON, WE WEPT: GENDER DISCRIMINATION IN EDUCATION AGAINST HAUSA/FULANI MEN IN NORTHERN NIGERIA IN THE NAME OF RELIGION BELIEFS	*Favour C. Uroko*	University of Nigeria Nsukka
THE PROBLEM OF THE SUBJECT, NATURE AND LIMITS OF THE RIGHT OFSELF DETERMINATION IN INTERNATIONAL LAW IN THE LIGHT OF THE DECISIONS OF THE UNITED NATIONS AND CURRENT DEVELOPMENTS	*Res. Asssit. Rıza ADIGÜZEL*	Ankara university
MANAGEMENT OF AIR TRAFFIC RIGHTS IN THE CIVIL AVIATION SECTOR	*Dr. Fatih KARAMAN*	---
DIGITAL EDUCATION IN HEI IN TURKEY: COMPARISON OF THE COVID-19 PERIOD AND THE STATE OF EMERGENCY IN 11 PROVINCES AS A RESULT OF THE K.MARAŞ-CENTERED EARTHQUAKE	*Elif Hatun ÖNAL KILIÇBEYLİ*	Adana Alparslan Turkes Science and Technology University
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Session 3 / Hall-1

DATE: 17.04.2023

Moderator: Prof. Dr. Fatma ÜNVER

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
THE RELATIONSHIP OF DOMINANT AND NON-DOMINANT UPPER EXTREMITY FUNCTIONS AND ANAEROBIC CAPACITY IN OVERHEAD ATHLETES	*Pınar TOKSÖZ* *Erhan KIZMAZ* *Fatma ÜNVER*	Pamukkale University
COMPARISON OF PHYSICAL ACTIVITY LEVELS AND COMMUNICATION SKILLS OF UNIVERSITY STUDENTS WITH AND WITHOUT A HISTORY OF COVID-19: A PILOT STUDY	*Res. Assist. Ayşenur YILMAZ* *Prof. Dr. Fatma ÜNVER*	Pamukkale University
TREATMENTS APPLIED TO THE ORAL CARE OF COPD PATIENTS AND NURSING CARE	*Assoc. Prof. Dr. Havva SERT* *Res. Assist. Büşra GÜRÇAY*	Sakarya University Sakarya University of Applied Sciences
INTELLIGENT THERMOELECTRIC ORTHOPEDIC DEVICE	*Dr. Lect. Günay ÖMER*	Ankara Medipol University
INVESTIGATION OF THE KNOWLEDGE LEVELS OF AMATEUR AND PROFESSIONAL ATHLETES ABOUT THE METHODS OF RECOVERY AFTER EXERCISE	*Res. Assist. Dr. Hamza BUDAK*	Aksaray University
WOMEN ATHLETES OF UNITED STATES IN THE MODERN OLYMPICS: THE EFFECT OF TITLE IX	*Gülcan TEKİN*	Agri Ibrahim Cecen University
THE POSITION OF WOMEN REFEREES IN THE SOCCER REFEREEING PROFESSION	*Res. Assist. Yusuf Yağız SARAÇOĞLU* *Ebru KAYA*	Agri Ibrahim Cecen University
AN EXAMINATION OF THE CURRENT SITUATION OF WOMEN COACHES IN NATIONAL AND INTERNATIONAL DIMENSION	*Res. Assist. Yusuf Yağız SARAÇOĞLU* *Ümmü Gülsüm ÇELİKER*	Agri Ibrahim Cecen University
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Session 3 / Hall-2

DATE: 17.04.2023

Moderator: Muhammad RIZQIYANTO

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
TALES AS ANTI-CORRUPTION EDUCATION FROM AN EARLY AGE	*Fiqi Munyani PUTRI* *Lita Dwi ARIYANI* *Hendri Hermawan ADİNUGRAHA* *Ade GUNAWAN* *Rıa Anisatus SHOLİHAH*	UIN KH. Abdurrahman Wahid Pekalongan
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EFFORTS TO HANDLE MENTAL DISORDERS	*Lia KHOIRINA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
THE EFFECT OF SHARIA ECONOMY ON ECONOMIC DEVELOPMENT IN INDONESIA	*Wiwit ANISA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
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Session 3 / Hall-3

DATE: 17.04.2023

Moderator: Assist. Prof. Dr. Teymur EROL

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
PROBLEMS EXPERIENCED BY TURKISH EDUCATION GRADUATE STUDENTS IN THE POSTGRADUATE EDUCATION PROCESS, SOLUTION SUGGESTIONS AND EXPECTATIONS FOR THESE PROBLEMS	*Assist. Prof. Dr. Teymur EROL* *Assist. Prof. Dr. Erkan AYDIN*	Mus Alparslan University Aksaray University
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EXAMINATION OF PRIMARY SCHOOL 4TH GRADE STUDENTS' DRAWINGS ON GLOBAL WARMING	*Prof. Dr. İjlal OCAK* *Lect. Nilda HOCAOĞLU* *Rabia KARAMAN*	Afyon Kocatepe University MEB
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Session 3 / Hall-4

DATE: 17.04.2023

Moderator: Qonita FITRIANI

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
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ANALYSIS THE CHALLENGES OF THE DEMOGRAPHIC BONUS IN 2045 FOR THE INDONESIAN ECONOMY	*Nurul QOMARİYAH* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
POLICY ON UNEMPLOYMENT	*Nur Zalfa Rifqo NABILA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
CONSUMER ISO MASLAHAH	*NAILUL MUNA* *Hendri Hermawan ADİNUGRAHA* *Muhammad Aris SYAFI'I*	UIN KH. Abdurrahman Wahid Pekalongan
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MANUFACTURER'S MOTIVATION AND OBJECTIVES IN PRODUCTION	*Ismatul KHALIYAH* *Hendri Hermawan ADİNUGRAHA* *Muh. Khafidz MA'SUM*	UIN KH. Abdurrahman Wahid Pekalongan
ASPEK-ASPEK PERILAKU KONSUMTIF MAHASISWA	*Husni FADHILAH* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
INTERNALIZATION OF TOLERANCE ATTITUDE OF GENERATION Z	*Ibtisam MEZALUNA* *Hendri Hermawan ADİNUGRAHA*	UIN KH. Abdurrahman Wahid Pekalongan
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Session 3 / Hall-5

DATE: 17.04.2023

Moderator: Sirhajwan Idek

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
ASSESSMENT OF WATER QUALITY INDEX IN AROUND GUDLAVALLERU KRISHNA DISTRICT, A.P, INDIA	*Subhashish Dey*	Seshadri Rao Gudlavalleru Engineering College
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VALORIZATION OF THE NATURAL AND THE ARTIFICIAL WASTE IN THE MANUFACTURE OF SELF-COMPACTING CONCRETE	*Dr. HANDEL Naoual* *Dr. DJOUIMAA Sarah* *Dr. KHAMMAR Farida*	Mohamed Cherif Messaadia University
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Session 3 / Hall-6

DATE: 17.04.2023

Moderator: SAMİRA

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
EPIDEMIOLOGICAL PROFILE OF COLORECTAL CANCER IN THE STATE OF BATNA, ALGERIA, BETWEEN 2006-2015	*Nourani Imene* *Beichi Faycal* *Oudjehih M*	University Batna 2
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Session 3 / Hall-7

DATE: 17.04.2023

Moderator: SAMİRA

Meeting ID: 832 6081 0607 / Passcode: 161718

Ankara Local Time: 15:00 – 17:00

TITLE	AUTHOR(S)	AFFILIATION
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YAĞIŞ SULARININ GERİ DÖNÜŞÜMÜ MALİYET ANALİZİ: KAYSERİ ÜNİVERSİTESİ 15 TEMMUZ YERLEŞKESİ ÖRNEĞİ

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ÖZET
Küresel olarak sıcaklıkların artması yağış şekillerini, frekanslarını ve kalitesini etkileyerek değiştirmekte sonuç olarak ise su kaynaklarının azalması ve kuraklık meydana gelmektedir. Bu durum 2022 Ekim 2023 Mart dönemleri arasında Türkiye'de hissedilir duruma gelmiş olup ülke genelindeki bazı barajlar kurumuş bazı barajlar ise su seviyesi çok düşük bir düzeye gerilemiştir. Ortaya çıkan bu sorunlar suyun daha verimli bir şekilde kullanılmasını bir zaruret haline getirmiştir. Su kaynaklarının beslenmesinde yağışlar son derece önemlidir. Ancak, günümüzde artan kentleşme ile su geçirimsiz yüzeylerin artması su kaynaklarının beslenmesini olumsuz etkilemektedir. Çatı, cadde, sokak, meydan ya da toplanma alanı gibi yüzeylerden toplanan sular yağmur suyu ya da kanalizasyon hatlarına verilerek ilk elden değerlendirilememektedir. Yağış sularının yerinde değerlendirilebilmesi için toplanıp depolanması gerekmektedir. Burada depolama için yapılacak maliyetin analizi yapılarak yapılacak harcamanın ne kadar sürede geri kazanılacağının tespiti önemlidir. Bu noktadan hareketle yapılan çalışmada Kayseri Üniversitesi 15 Temmuz Yerleşkesi örneğinde yağış sularının yerinde değerlendirilebilmesi ve bu işlemin maliyet analizi konu edinilmiştir. Çalışma kapsamında ilk olarak Kayseri Üniversitesi 15 Temmuz Yerleşkesi yerleşim planı ve yerleşkede bulunan yapıların çatı planları temin edilmiştir. İkinci bölümde yağış suyu toplanabilecek yüzeyler belirlenerek bu alanlarda kullanılan malzemeler ve malzemelerin güncel durumu belirlenerek toplanabilecek yağış suyu miktarı hesaplanmıştır. Üçüncü bölümde toplanabilecek yağış suyu miktarına bağlı olarak depo hacmi, tipi ve yerleri belirlenerek maliyeti hesaplanmıştır. Son bölümde yağış suyu toplama sisteminin verimliliği değerlendirilmiştir. Bunun sonucunda konuyla ilgili genel bir değerlendirme yapılarak çözüm önerileri sunulmuştur. Çalışmanın literatüre ve yapılacak diğer çalışmalara katkı sağlaması umulmaktadır.
Anahtar Kelimeler: Yağış suyu toplama, yağış suyu depolama, çatı kaplama malzemeleri, Kayseri Üniversitesi, Eğitim yapıları.

PRECIPITATION WATER RECYCLING COST ANALYSIS: KAYSERI UNIVERSITY 15 JULY CAMPUS EXAMPLE

ABSTRACT
Increasing temperatures globally affect precipitation patterns, frequencies, and quality, and as a result, decrease in water resources and drought occur. This situation has become palpable in Turkey between October 2022 and March 2023, and some dams across the country have dried up and the water level of some dams has dropped to a very low level. These emerging problems have made it a necessity to use water more efficiently. Rainfall is extremely important in feeding water resources. However, the increasing urbanization and the increase in impermeable surfaces affect the feeding of water resources negatively. Water collected from surfaces such as roofs, avenues, streets, squares or gathering areas cannot be evaluated at first hand by giving them to rainwater or sewer lines. Precipitation water must be collected and stored to be evaluated in situ.

Here, it is important to analyze the cost to be made for storage and to determine how long it will take to recover the expenditure to be made. From this point of view, in the study carried out in Kayseri University 15 July Campus, the on-site evaluation of precipitation waters and the cost analysis of this process are discussed. Within the scope of the study, firstly, the settlement plan of the 15 July Campus of Kayseri University and the roof plans of the buildings on the campus were provided. In the second part, the surfaces where precipitation water can be collected are determined, the materials used in these areas and the status of the materials are determined and the amount of precipitation water that can be collected is calculated. In the third part, depending on the amount of precipitation water that can be collected, the storage volume, type and location are determined, and the cost is calculated. In the last section, the efficiency of the rainwater collection system is evaluated. As a result, a general evaluation on the subject was made and solution suggestions were presented. It is hoped that the study will contribute to the literature and other studies to be carried out.
Keywords: Rainwater collection, precipitation water storage, roofing materials, Kayseri University, Educational buildings.

1. GİRİŞ

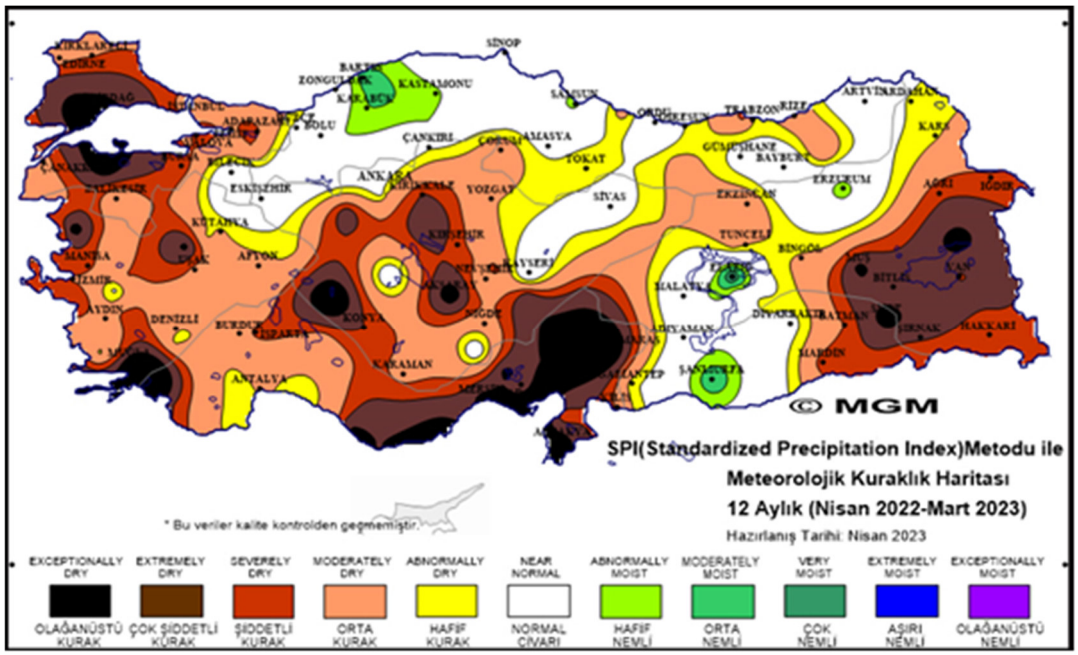
Yaşamın devam edebilmesi ancak su ile mümkündür. Yeryüzünde yaşamış olan uygarlıkların hepsi suya kolay ulaşabilecekleri bir konumda yerleşmişlerdir. Su sayesinde tarımsal aktiviteler artarak yerleşik hayata geçilmiş kentler inşa edilmiştir. Su yaşam için sonsuz öneme sahip olmasına karşın sonsuz bir kaynak değildir. Dünya'nın %70,8 yani 361.126.221 km²'lik bölümü sularla kaplı olmasına rağmen bu miktarın %97'si tuzlu %3'ü tatlı su kaynağıdır. Tatlı suların ise %99'luk kısmı ulaşılamayan %1'lik kısmı ulaşılabilen su kaynağı durumundadır [1]. Bu durum suyun ne kadar önemli olduğunun göstergesidir.

Su yapay olarak üretilemeyen bir kaynak olup doğal süreçte döngü halindedir (Görsel 1). Yani günümüzdeki su miktarı yeryüzü yaratıldığı anda var olan su miktarı ile aynıdır. Buna karşın dünya nüfusu hızla artarak kişi başına düşen su miktarı azalmakta, diğer taraftan ise kişi başı su tüketim miktarı yükselmektedir. Sadece 1940-1990 yılları arası dönemde nüfus 3 milyar artmış olup, kişi başına düşen tatlı su miktarı ise 400 m^3 ten 800 m^3e çıkmıştır [2]. 2022 yılı sonu itibariyle ise Birleşmiş Milletlerin açıklamasına göre dünya nüfusu 8 milyarı aşmış durumdadır. Tüm bu durumlar değerlendirildiğinde suya talep artmakta ancak kişi başına düşen su miktarı ve su kaynaklarının bu talebi karşılama durumu azalmaktadır.



Görsel 1. Su Döngüsü-Hidrolik Çevrim [3].

Görsel 1'de görüldüğü gibi su buharlaşma, yağış ve yer altı suyu boşalımı gibi çeşitli yollarla sürekli bir döngü halindedir. Bu döngüde meydana gelecek herhangi bir değişiklik su kaynakları ve kullanıcıları açısından büyük problem meydana getirebilir. Örneğin döngü içerisindeki su miktarı aynı olmasına karşın yağışlar bir bölgede fazla olup sele neden olurken diğer bölgede azalıp kuraklığa neden olabilir. Öyle ki Meteoroloji Genel Müdürlüğü'nün ülkemizin Nisan 2022-Mart2023 dönemlerini kapsayan 12 aylık meteorolojik kuraklık haritasına (Görsel 2) bakıldığında ülkemizin kuraklık tehlikesi ile karşı karşıya olduğu görülmektedir.

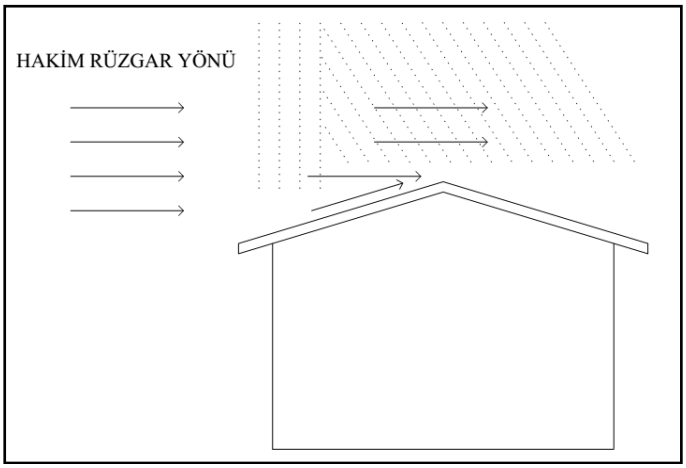


Görsel 2. Nisan 2022 Mart 2023 Türkiye Meteorolojik Kuraklık Haritası [4].

Sera gazı salınımlarının artması ile atmosfer ve yüzey sıcaklıklarının yükselmesi Görsel 2'de gösterildiği gibi yağış rejimi, şekli ve miktarını değiştirerek kuraklığa neden olmaktadır. Bu duruma ek olarak kentlerdeki aşırı yapılaşma nedeniyle su geçirimsiz yüzeylerin artması da su kaynaklarının yetersiz beslenmesine neden olmaktadır. Tüm bu durumlar değerlendirildiğinde azalan yağışların değerlendirilmesini bir zaruret haline getirmektedir. Bu konuda yağışların ilk elden değerlendirilebilmesi çatı yüzeylerinden toplanarak depolanması ve kullanılması çözüm önerisi olarak düşünülebilir. Depolar yapının içerisinde ya da dışında uygun alanlarda oluşturulabilir. Ancak, günümüzde artan inşaat maliyetleri nedeniyle yapılacak her işin verimliliğin değerlendirilmesi diğer bir sorun olarak karşımıza çıkmadır. Buradan hareketle yapılan bu çalışma ile alan çalışması üzerinden yağış suyu toplanması, depolanması, maliyeti ve verimliliği değerlendirilecektir.

2. YAĞIŞ SULARININ TOPLANMASI VE DEPOLANMASI

Yağışların ilk elden toplanabileceği en uygun yerlerden birisi çatılardır. Ancak, bu yüzeylerden yağışların hepsinin toplanabilmesi mümkün değildir. Yağışlarının hepsinin toplanamamasında müdahale edilemeyen ve edilebilen unsurlar bulunmaktadır. Müdahale edilemeyen unsurlar; rüzgâr hızı ve yönü ile yağışların süresi, miktarı gibi durumlardır (Görsel 3). Müdahale edilebilen unsurlar ise çatıların şekli, yatayda kapladığı alan, rüzgâra göre konumlanma, çatı kaplama malzemesi gibi unsurlardır.



Görsel 3. Rüzgâr yağış itimi [5].

Çatılardan toplanacak sular için ne kadar depo yapılacağının belirlenebilmesi için toplanabilecek yağış miktarı hesaplanabilmektedir. Bu işlemde çatıların yatay düzlemde kapladığı alan, çatı kaplama malzemelerinin akış katsayısı ve yağış miktarının kullanıldığı bir formül kullanılmaktadır. Bu formül;

$$Q = c \times i \times A \quad (1).$$

Burada [5];

Q : m3/süre ya da lt/süre sonunda elde edilen su miktarı,
c : Yağışın akışa dönüştürülme katsayısı,
i : mm/saat 'te m2 ye düşen yağış miktarı,
A : yatay düzlemde çatıların kapladığı m2 alandır.

Akış katsayısı "**c**", birim zamanda yağış toplama alanından iletim kanallarına varan su miktarı ile bu bölgeye düşen maksimum yağış miktarı arasındaki orandır. Bu oran 0-1 arasındadır ve belirli etmenlere bağlı olarak değişmektedir. Bunlar [5];

- Çatı kaplama malzemesi,
- Yüzey sıcaklığı, buharlaşma durumu,
- Damlaların çatı yüzeyinden sıçraması,
- Rüzgâr-yağmur etkileşimi gibi etmenlerdir.

Toplanacak su miktarını belirlemede kullanılan "c" katsayısı, tüm malzemeler için dış ortam koşulları aynı olduğu varsayıldığında su emme oranı, pürüzlülük, yıpranmışlık gibi durumlara göre değişiklik göstermektedir. Bu katsayılar Çizelge 1'de belirtilmiştir [5].

Çizelge 1. Malzeme türüne göre akış katsayısı [5,6].

Malzeme	Su Emme Oranı	Akış Katsayısı (c)
Kil Esaslı Malzemeler	% 13	Yıpranmış Eski: 0,75 Yıpranmamış Eski:0,80 Yeni: 0,90
Çimento Esaslı Malzemeler	% 3-17	Yıpranmış Eski: 0,60 Yıpranmamış Eski:0,70 Yeni: 0,80
Metal Malzemeler	%0	Dalgalı Eski: 0,70 Dalgasız Eski: 0,75 Dalgalı Yeni: 0,85 Dalgasız Yeni: 0,90
Bitüm Esaslı Malzemeler	%0-20	Yıpranmış Eski: 0,70 Yıpranmamış Eski:0,75 Yeni: 0,80
Polimer Malzemeler	%0-0,8	Yıpranmış Eski: 0,80 Yıpranmamış Eski:0,85 Yeni: 0,90
Cam Malzemeler	%0	0,90
Doğal Taş Malzeme	%3	Yıpranmış Eski: 0,20 Yıpranmamış Eski:0,35 Yeni: 0,50
Bitkisel Malzemeler	%15-150	0,05-0,10

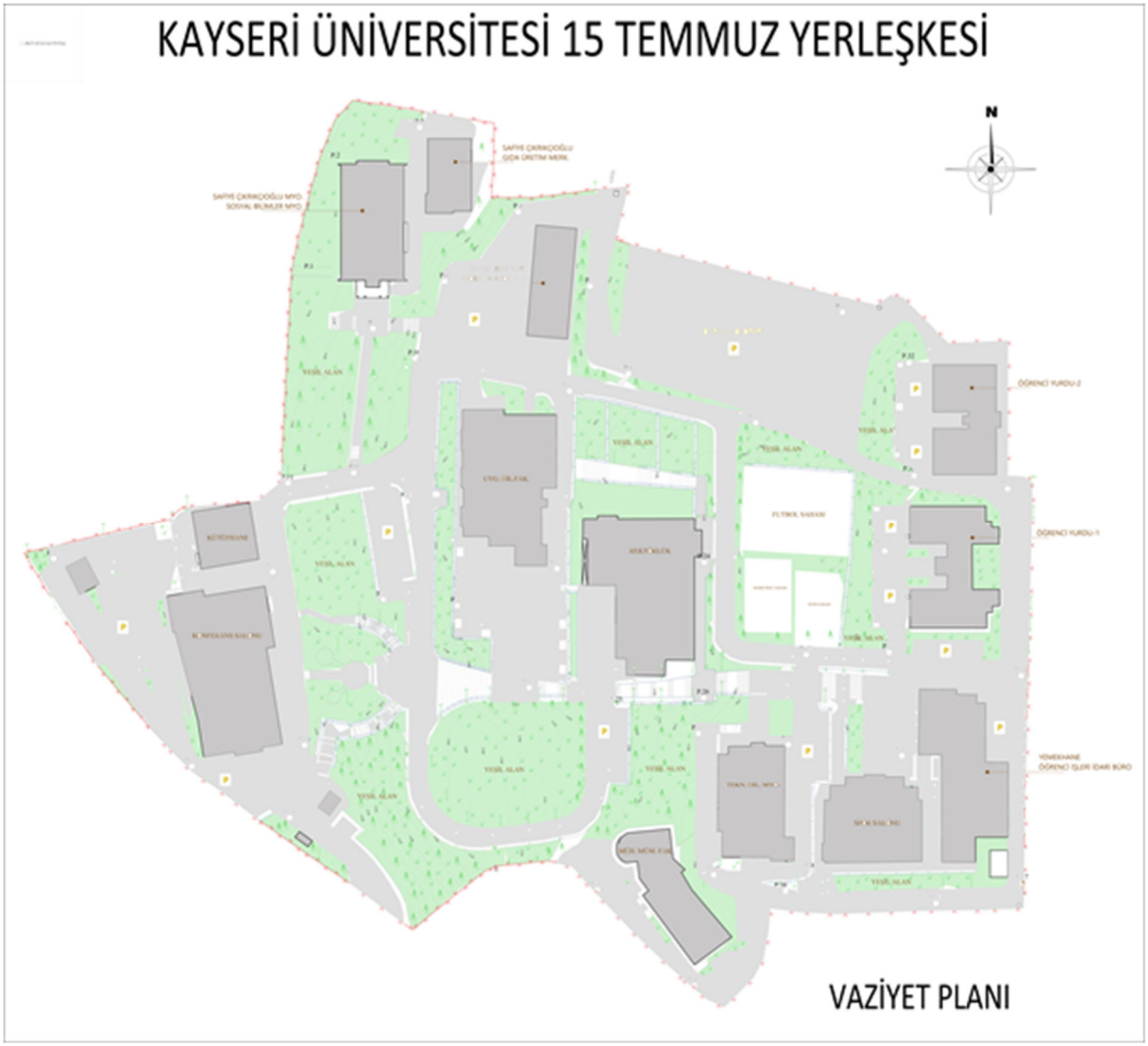
Çatı yüzeyinden toplanan yağış suları yapı içerisinde kullanılmak üzere depolama sistemlerine iletilmektedir. Depoların oluşturulmasında birçok etken bulunmaktadır. Bunlar; yağış toplama alanından gelecek su miktarı, ihtiyaç miktarı, yağış olmayacağı zaman aralığı, depo alanının yeri, özel gereksinimler ve maliyettir [5]. Yağış suları binanın özelliğine ve bulunduğu bölgenin topoğrafik özelliklerine bağlı olarak bodrum kat, tesisat katı, çatı arası gibi yapı içerisinde, yapı dışında ve yer altında olmak üzere üç farklı yerde konumlandırılabilir. Toplanacak yağış suları, ahşap, metal, polimer, betonarme, ferrocement, tuğla, gazbeton ve taştan yapılmış depolarda toplanabilmektedir.

3. KAYSERİ ÜNİVERSİTESİ 15 TEMMUZ YERLEŞKESİNE YAĞIŞLARIN TOPLANMASI DEPOLANMASI VE VERİMLİLİĞİ

3.1. Kayseri Üniversitesi 15 Temmuz Yerleşkesi

Kayseri Üniversitesi (KAYÜ) 18 Mayıs 2018 tarihli ve 30425 sayılı Resmî Gazetede yayımlanan 7141 sayılı "Yükseköğretim Kanunu ile Bazı Kanun ve Kanun Hükmünde Kararnamelerde Değişiklik Yapılmasına Dair Kanun"la kurulmuştur. Üniversite 15 Temmuz Merkez Yerleşkesi, Develi Seyrani Yerleşkesi, Pınarbaşı Alparslan Türkeş Yerleşkesi, Yeşilhisar Prof. Dr. Fuat Sezgin Yerleşkesi ile Tomarza, Bünyan, İncesu, Yahyalı yerleşkeleri olmak üzere toplam 8 yerleşkeden oluşmaktadır.

15 Temmuz Merkez Yerleşkesi Kayseri İli Merkez Talas ilçesi Mevlana Mahallesi sınırları içerisinde bulunmaktadır. Yerleşkede 13 idari ve akademik birim ile KYK'ya bağlı 2 öğrenci yurdu bulunmaktadır (Görsel 4). Yerleşke alan metrekare bilgileri Çizelge 2'de gösterilmiştir.



Görsel 4. Kayseri Üniversitesi 15 Temmuz Merkez Yerleşkesi [7].

Çizelge 2. Kayseri Üniversitesi 15 Temmuz Merkez Yerleşkesi Alan Bilgileri [7]

Bina Oturum Alan Toplamı	20.700 m^2
Yeşil Alan Toplamı	28.890 m^2
Sert Zemin Toplamı	55.477 m^2
Açık Alan toplamı	84.367 m^2
Yerleşke Toplam Alanı	105.067 m^2

3.2. Kayseri Üniversitesi 15 Temmuz Yerleşkesi Yağış Suyu Toplama Hesabı

Çalışma kapsamında ilk olarak veri toplama işlemi gerçekleştirilmiştir. Bu doğrultuda Yapı İşleri ve Teknik Daire Başkanlığından Autocad programında yerleşke vaziyet planı ve yapı kat planları temin edilmiş, yerleşkede bulunan yapıların çatılarına çıkılarak malzeme türü ve durumu tespit edilmiştir. Ayrıca, yağış suyu toplama hesabının yapılabilmesi için Kayseri'de bulunan Meteoroloji 7. Bölge Müdürlüğü'nden Talas ilçesine ait yağış verileri alınmıştır. İlçe kapsamında ölçüm istasyonlarının 2018 yılında kurulması sebebiyle 2018-2023 yılları arası yağış verileri kullanılmıştır (Çizelge 3). Yağış suyu toplama hesabınım daha verimli bir şekilde olabilmesi için yağış verileri aylık olarak en yüksek, ortalama ve en düşük olacak şekilde (Çizelge 4) belirlenerek 3 ayrı şekilde işlem gerçekleştirilmiştir.

Çizelge 3. Kayseri Talas 2018-2023 yılları arası aylık yağış verileri [8].

YIL/AY (mm)	1	2	3	4	5	6	7	8	9	10	11	12
2018	47,00	7,30	63,50	11,60	41,00	40,90	0,80	0,00	1,20	26,60	20,30	34,80
2019	18,80	13,30	22,40	48,70	26,20	62,00	44,00	20,10	7,10	12,70	16,40	22,20
2020	8,20	49,30	48,90	12,00	29,90	29,20	0,70	0,00	3,40	2,60	7,00	18,10
2021	42,50	5,60	42,20	22,60	19,70	40,20	0,00	0,00	17,10	0,50	16,10	14,80
2022	15,20	5,50	33,60	13,20	46,00	56,70	6,00	0,00	31,60	2,60	13,50	17,90

Çizelge 4. Kayseri Talas 2018-2023 yılları arası aylık en yüksek, ortalama ve en düşük yağış verileri [8].

BİRİM/AY (mm)	1	2	3	4	5	6	7	8	9	10	11	12
EN YÜKSEK	47,00	49,30	63,50	48,70	46,00	62,00	44,00	20,10	31,60	26,60	20,30	34,80
ORTALAMA	26,34	16,20	42,12	21,62	32,56	45,80	10,30	4,02	12,08	9,00	14,66	21,56
EN DÜŞÜK	8,20	5,50	22,40	11,60	19,70	29,20	0,00	0,00	1,20	0,50	7,00	14,80

İkinci aşamada Bölüm 2'de ayrıntılı olarak tanımlanan "Q= c x i x A" formülü kullanılarak yerleşkede bulunan üniversiteye ait yağış suyu toplanabilecek 13 yapı için yağış suyu toplama hesabı yapılmıştır. Yerleşkede bulunan Kredi Yurtlar Kurumuna ait olan iki yurt binası için hesaplama yapılmamıştır. Yağış suyu hesabı yapılırken bazı yapılarda çatı alanında birden fazla kaplama malzemesi kullanıldığı tespit edilmiştir. Bu sebeple farklı çatı kaplama malzemesine sahip yapılar için ayrı ayrı hesap yapılarak toplam miktar belirlenmiştir. Yapılan hesaplar sonucu yerleşkede bulunan yapılardan toplanabilecek yağış suyu miktarı birim ve yerleşke bazında toplam olacak şekilde Çizelge 5'te gösterilmiştir.

Çizelge 5. Kayseri Üniversitesi 15 Temmuz Yerleşkesi Birim ve Yerleşke Bazında Yıllık Toplanabilecek Yağış Suyu Miktarı

YAĞIŞ SUYU TOPLANACAK YAPI	YAĞIŞ SUYU TOPLANACAK BÖLGEDEKİ KAPLAMA MALZEMESİ	YAĞIŞ SUYU TOPLANABİLECEK ÇATI ALANI (m2)	EN YÜKSEK (1 YIL/LİTRE)	ORTALAMA (1 YIL/LİTRE)	EN DÜŞÜK (1 YIL/LİTRE)
REKTÖRLÜK	BİTÜM	2057,89	762293,00	395518,00	185366,00
	CAM	357,53	186201,00	82459,00	38646,00
	TOPLAM	**2415,42**	**948494,00**	**477977,00**	**224012,00**
TEKNİK BİLİMLER MYO	KİL ESASLI	61,04	24118,00	12514,00	5865,00
	BİTÜM	892,7	330678,00	171571,00	80409,00
	POLİMER	228,56	95954,00	49785,00	23333,00
	CAM	206,9	91968,00	47719,00	22362,00
	TOPLAM	**1389,20**	**542718,00**	**281589,00**	**131969,00**
MUSTAFA ÇIKRIKÇIOĞLU MYO	BİTÜM	**1171,98**	**434131,00**	**225251,00**	**105565,00**
SAFİYE ÇIKRIKÇIOĞLU MYO	BİTÜM	1242	460067,00	238708,00	111874,00
	DALGALI METAL	195	67418,00	34979,00	16394,00
	CAM	108,97	48438,00	25132,00	11779,00
	TOPLAM	**1545,97**	**575923,00**	**298819,00**	**140047,00**
SPOR SALONU	BİTÜM	451,62	167290,00	86801,00	40678,00
	DALGALI METAL	1080,66	373617,00	193851,00	90852,00
	TOPLAM	**1532,28**	**540907,00**	**280652,00**	**131530,00**
UYGULAMALI BİLİMLER FAKÜLTESİ	BİTÜM	55,9	20707,00	10743,00	5034,00
	CAM	204,54	90919,00	47175,00	22108,00
	DOĞAL TAŞ	1727,51	298626,00	154944,00	72616,00
	DALGALI METAL	188,9	65309,00	33885,00	15881,00
	TOPLAM	**2176,85**	**475561,00**	**246747,00**	**115639,00**
YEMEKHANE BİNASI	BİTÜM	255,93	94806,00	49190,00	23054,00
	DALGALI METAL	1003,98	347107,00	180096,00	84403,00
	TOPLAM	**1259,91**	**441913,00**	**229286,00**	**107457,00**
GIDA ÜRETİM MERKEZİ	BİTÜM	**626,46**	**232056,00**	**120403,00**	**56429,00**
KONGRE MERKEZİ	BİTÜM	117,18	43407,00	22522,00	10554,00
	DALGALI METAL	2245,44	776316,00	402791,00	188775,00
	TOPLAM	**2362,62**	**819723,00**	**425313,00**	**199329,00**
KÜTÜPHANE	BİTÜM	645,26	239020,00	124017,00	58122,00
	CAM	73,29	32578,00	16903,00	7922,00
	TOPLAM	**718,55**	**271598,00**	**140920,00**	**66044,00**

MERKEZ GİRİŞ	DALGALI METAL	**173,07**	**59836,00**	**31046,00**	**14550,00**
SATIŞ MERKEZİ	BİTÜM	**121,5**	**45008,00**	**23352,00**	**10944,00**
TEKNİK BİLİMLER MYO MOBİLYA ATÖLYESİ	DALGALI METAL	**860,9**	**297640,00**	**154432,00**	**72376,00**
KAYÜ 15 TEMMUZ YERLEŞKESİ TOPLAM		**16354,71**	**5685508,00**	**2935787,00**	**1375891,00**

Çizelge 5'e bakıldığında yerleşkede bulunan 13 yapıda bitüm, cam, kil esaslı, polimer, dalgalı metal, doğal taş olmak üzere 6 farklı çatı kaplama malzemesi kullanıldığı ve yağış suyu toplanabilecek toplam alanın 16.354, 71 m^2 olduğu görülmektedir. Bununla birlikte yıllık olarak en düşük 1.375.891, ortalama 2.935.787 ve en yüksek 5.685.508 litre yağış suyunun toplanabileceği hesaplanmıştır. İdari ve Mali İşler Daire Başkanlığından alınan 2022 yılı ilk 8 ay yerleşke toplam su tüketim miktarı ve fiyatları Çizelge 6'da gösterilmiştir. Çizelge 6 ile Çizelge 5 karşılaştırıldığında yerleşke bazında ilk sekiz ayda harcanan su miktarının en yüksek %21,5, ortalama %11, en düşük ise %5'inin karşılanabileceğini göstermektedir.

Çizelge 6. Kayseri Üniversitesi 15 Temmuz Yerleşkesinde 2022 Yılı İlk 8 Ayında Kullanılan Su Miktarı ve Tutarı [9].

SIRA NO	HARCANAN LİTRE	TUTAR
1	2.776.000	₺ 17.815,68
2	2.167.000	₺ 14.785,34
3	10.030.000	₺ 95.083,00
4	1.870.000	₺ 16.313,00
5	1.682.000	₺ 15.021,00
6	909.000	₺ 8.230,00
7	4.202.000	₺ 39.210,00
8	2.687.000	₺ 25.964,00
TOPLAM	**26.323.000**	**₺ 232.422,02**

3.3. Kayseri Üniversitesi 15 Temmuz Yerleşkesi Yağış Suyu Depolaması ve Maliyeti

Çalışmanın üçüncü aşamasında toplanabilecek yağış sularının depolanması incelenmiştir. Hesaplama sonucu toplanacak yağış sularının bina içerisinde kullanım ve yerleşkede yeşil alanların sulanmasında kullanım olmak üzere iki ayrı depolama türü üzerinden depo maliyetlerinin hesaplanacaktır. Bunun sebebi bina içerisinde sürekli kullanım olacağı için depo hacmi az olan depo türlerinin kullanılabileceği, yeşil alan sulamasında ise yıllık olarak sadece Mayıs-Ekim ayları arası dönemin sulama işleminin gerçekleştirilmesi sebebiyle büyük depolama hacimlerine ihtiyaç duyulmasıdır. Bu noktada birim bazında aylık düzeyde en yüksek miktarda toplanabilecek yağış suyu miktarına göre iç mekânlarda, Ekim- Mayıs arası dönemde en yüksek miktarda toplanabilecek yağış suyu miktarına görede dış mekânlarda oluşturulması gereken depo hacim ve adetleri Çizelge 7'de gösterilmiştir.

Çizelge 7. Kayseri Üniversitesi 15 Temmuz Yerleşkesinde Birim ve Yerleşke Bazında Yıllık Toplanabilecek Yağış Suyu İçin İç ve Dış Mekâna Göre Depo Hacim ve Adetleri

İç Mekân Depoları		Dış Mekân Depoları	
Adet	Hacim	Adet	Hacim
2	10 m3	1	30 m3
3	50 m3	1	50 m3
6	80 m3	1	150 m3
1	100 m3	1	160 m3
1	125 m3	1	200 m3
		2	275 m3
		1	300 m3
		2	330 m3
		1	350 m3
		1	500 m3
		1	550 m3

Çalışma yapılan alan bir eğitim ve kamu kurumu olması sebebiyle iç mekânlarda sular ağırlıklı temizlik ve lw-wc ihtiyaçlarının karşılanması sebebiyle depo maliyetlerinin ve verimliliğinin hesaplanmasında filtreleme sistemleri dahil edilmemiştir. İç mekanlarda suların depolanması için az alan bulunması, kırım döküm gibi inşaat işlerinin kolay bir şekilde yapılamayacağı gerekçeleri göz önünde bulundurularak depo olarak sadece polimer ve metal depolar tercih edilmiştir. Depo maliyeti hesabı yapılırken yağış sularının bina etrafında bulunan düşey yağmur iniş borularından zemin yüzeyinde yatayda PVC yağmur borusu ile toplanarak bodrum kata iletileceği düşünülmüştür. Bu doğrultuda pvc boru metrajı hesaplanarak maliyet hesabına katılmıştır. Ayrıca maliyetlerin yıllık bazda değişimimin görülebilmesi için de 2018-2023 yılları arası Çevre Şehircilik ve İklim Değişikliği Bakanlığı Birim Fiyatları [10-15] kullanılarak maliyet hesabı da yapılmıştır. Tüm bu işlemler doğrultusunda iç mekânlarda kullanılacak depo maliyetleri Çizelge 8'de gösterilmiştir. Çizelge 8'e bakıldığında 2021 ve 2022 yılında metal, diğer yıllarda polimer su depo toplam maliyetlerinin uygun olduğu görülmektedir. 1 metreküp depo maliyeti bakımından karşılaştırıldığında ise metal depoların sadece 2021 yılında polimer depolara göre düşük diğer yıllarda polimer depoların metal depolara göre düşük maliyete sahip olduğu görülmektedir. burada 2022 yılında metal depoların toplam maliyetinin polimer depolara göre toplam maliyetinin düşük, 1 metreküp maliyetinin yüksek çıkması hazır depo üniteleri nedeniyle oluşturulan toplam depo hacminin az olmasından kaynaklandığı görülmektedir. genel olarak değerlendirme yapıldığında ise polimer depo maliyetlerinin metal depo maliyetlerine göre daha uygun olduğu görülmektedir.

Yapılan yatırım maliyetinin geri kazanımı, verimliliği bir diğer önemli konudur. Bu doğrultuda toplanabilecek yağış sularının en yüksek, ortalama ve en düşük olma durumuna göre yıllık depo maliyetlerinin geri kazanımı hesaplanarak Çizelge 9'da gösterilmiştir. Bu hesaplamada KASKİ (Kayseri Su ve Kanalizasyon İdaresi)'nin ilgili yılların Nisan ayı su bedelleri toplanabilecek su miktarları ile çarpılıp üzerine %18 KDV oranı ilave edilerek tasarruf edilecek miktar belirlenmiştir. Belirlenen bu tutar depo maliyeti ile kıyaslanarak yıllık olarak depo maliyetinin % kaçlık dilimini karşıladığı ve toplam maliyeti ne kadar sürede amorti edeceği belirlenmeye çalışılmıştır. Buradaki amaç depo inşa yılındaki maliyet değişimlerinin tespit edilebilmesidir.

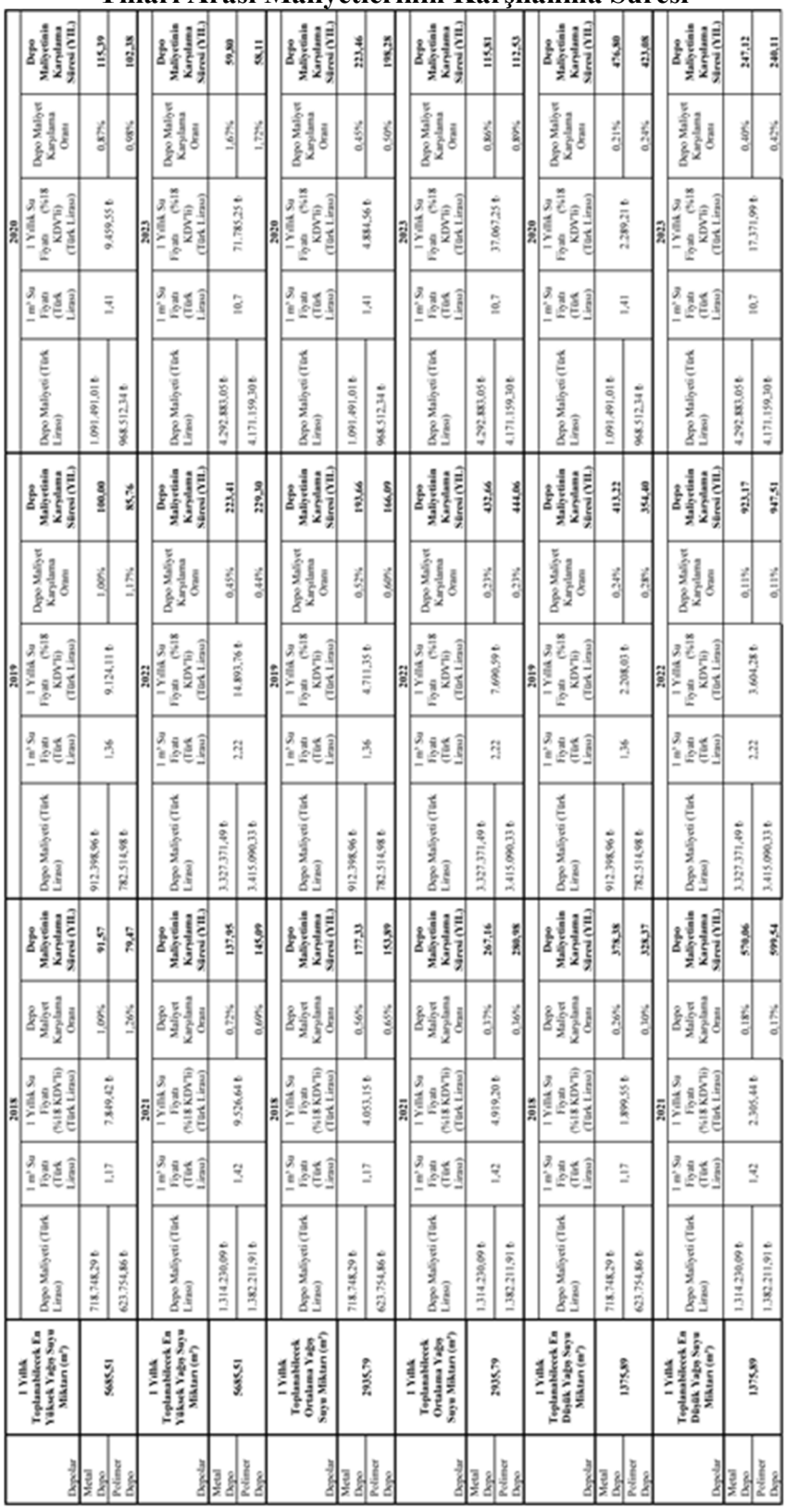
Çizelge 9'a bakıldığında polimer depolar depolar ile en yüksek miktarda su depolanabilmesi durumunda 2018 yılı hesaplamalarına göre depo maliyeti 79,47 yılda geri kazanılırken bu durum 2022 yılına geldiğinde 229,30 yıla çıkarken 2023 yılında birden 58,11 yıla düşmektedir. Metal depolara bakıldığında 2018 yılında 91,57 yılda karşılanırken bu durum 2022 yılına gelindiğinde 223,41'e çıkıp, 2023 yılına gelindiğinde 59,80 yıla düşmektedir. Oratalama yağış miktarı ile hesap yapıldığında polimer depolarda 2018 yılında 153, 2022 yılında 444, 2023 yılında 112 yılda karşılanırken metal depolarda 2018 yılında 177, 2022 yılında 432 2023 yılında 115 yılında karşılandığı görülnmektedir. En düşük yağış miktarı ile yapılan hesaplara bakıldığında polimer depolarda 2018 yılında 328, 2022 yılında 947, 2023 yılında 240 yılda karşılandığı, metal depolarda ise 2018 yılında 378, 2022 yılında 923, 2023 yılında ise 247 yılda karşılandığı görülmektedir. Buradan hareketle genel bir değerlendirme yapılacak olursa yağış miktarı, yıllık ve bölgesel olarak değişen su tüketim bedelleri, seçilen depo türü ve miktarına göre daha kısa ya da uzun sürede su depolarının kendi maliyetini karşıladığı anlaşılmaktadır.

Çalışma kapsamında bina içerisi kullanımın yanında birde dış mekanda kullanım için depo sistemleri oluştulmuştur. Bu kapsamda Çizelge 7'ye bakıldığında dış mekanda büyük hacimli depolar gereklidir. Çevre Şehircilik ve İklim Değişikliği Bakanlığı birim fiyatlarında belirtilen büyüklüklerde metal ve polimer depolar olmadığı için dış mekan depoları tuğla, gaz beton, taş ve betonarmeden olacağı planlanarak depo projeleri oluşturulmuştur. Çizelge 7 de 11 farklı hacimde toplam 13 adet depo gerektiği hesaplanmıştır. Bu doğrultuda 30 m^3, 50 m^3, 150 m^3, 160 m^3, 200 m^3 depolar Görsel 5'te, 275 m^3, 300 m^3, 330 m^3 depolar Görsel 6'da, 350 m^3, 500 m^3 ve 550 m^3 depolar Görsel 7'de gösterilmiştir. Oluşturulan bu depoların maliyet durumu tercih edilen duvar malzemesi türünün yanında su yalıtımın bitümlü ya da sürme esaslı olması durumuna göre de hesaplama yapılmıştır. Bununla birlikte iç mekan depolama sisteminde metal ve polimer depolar için Çizelge 9'da yapılan yağış sularının en yüksek, ortalama ve en düşük olma durumuna göre yıllık depo maliyetlerinin geri kazanımı dış mekan depoları için de yıllık bazda yapılarak 2018 ile 2019 yılı maliyet ve verimliliği Çizelge 10, 2020 ile 2021 yılı maliyet ve verimliliği Çizelge 11, 2022 ile 2023 yılı maliyet ve verimliliği Çizelge 12'de gösterilmiştir.

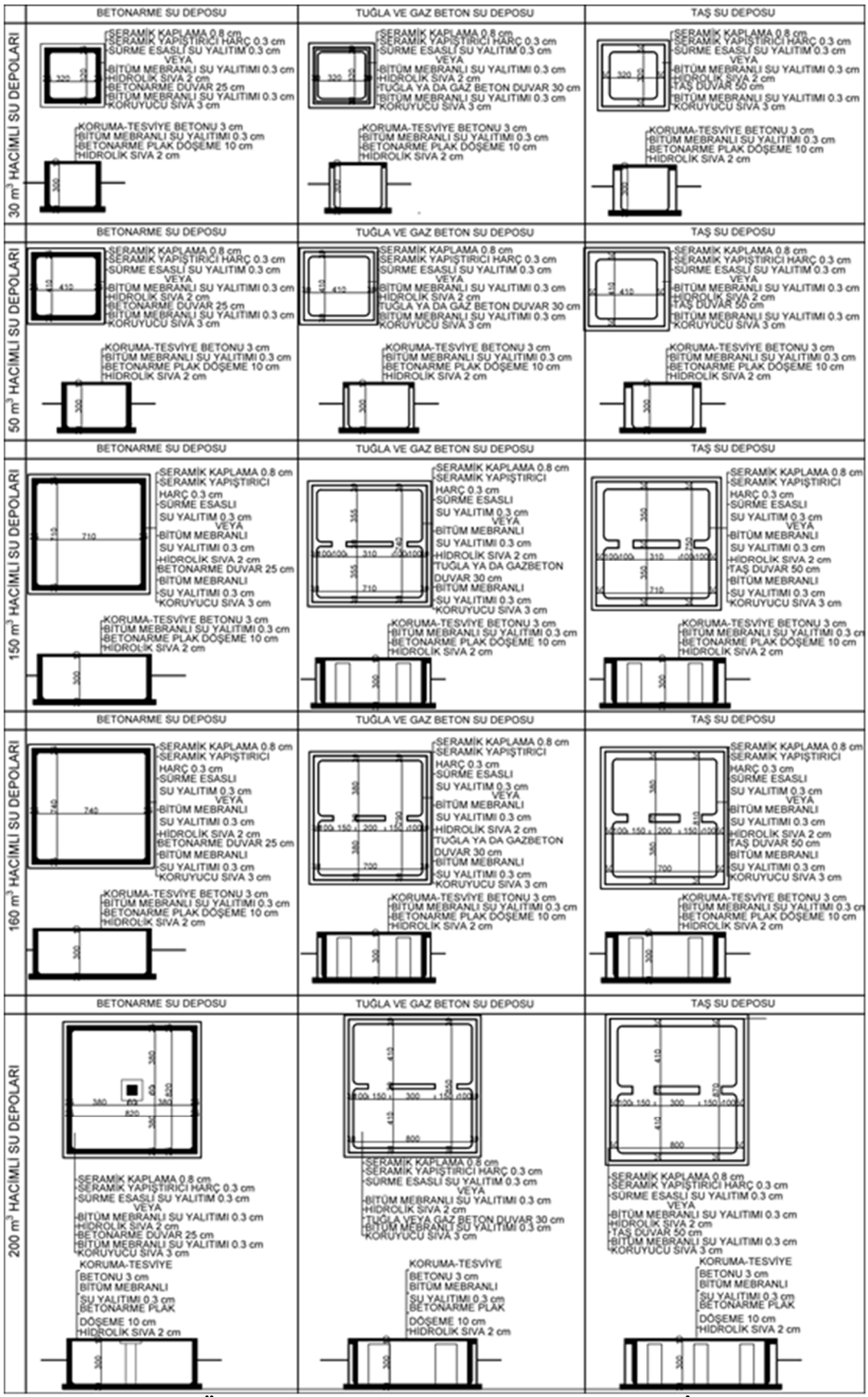
Çizelge 8. Kayseri Üniversitesi 15 Temmuz Yerleşkesinde İç Mekâna Depo Adet ve 2018-2023 Yılları Arası Maliyetleri

Adet/ metre	Poz	Depo	2018 Yılı Birim Fiyat	2018 Yılı Toplam Fiyat	2019 Yılı Birim Fiyat	2019 Yılı Toplam Fiyat	2020 Yılı Birim Fiyat	2020 Yılı Toplam Fiyat	2021 Yılı Birim Fiyat	2021 Yılı Toplam Fiyat	2022 Yılı Birim Fiyat	2022 Yılı Toplam Fiyat	2023 Yılı Birim Fiyat	2023 Yılı Toplam Fiyat
2077	15.315.1002	Ø 100 mm çapında bir ucu muflu sert PVC yağmur borusu temini ve yerine tesbiti	₺17,38	₺36.098,26	₺22,46	₺46.649,42	₺25,93	₺53.856,61	₺37,70	₺78.302,90	₺73,41	₺152.472,57	₺89,65	₺186.203,05
2	25.150.1604	10 m³ Cam Elyaf Takviyeli (GRP) Modüller su deposu	₺15.630,00	₺31.260,00	₺19.589,71	₺39.179,42	₺24.340,76	₺48.681,52	₺34.546,43	₺69.092,86	₺86.341,50	₺172.683,00	₺105.565,00	₺211.130,00
3	25.150.1609	50 m3 cam elyaf takviyeli (grp) modüller su deposu	₺33.522,50	₺100.567,50	₺42.059,04	₺126.177,12	₺52.215,18	₺156.645,54	₺75.002,63	₺225.007,89	₺186.999,50	₺560.998,50	₺229.235,00	₺687.705,00
6	25.150.1612	80 m3 cam elyaf takviyeli (grp) modüller su deposu	₺52.833,63	₺317.001,78	₺66.143,38	₺396.860,28	₺82.224,73	₺493.348,38	₺116.837,80	₺701.026,80	₺292.477,50	₺1.754.865,00	₺357.127,50	₺2.142.765,00
1	25.150.1614	100 m3 cam elyaf takviyeli (grp) modüller su deposu	₺64.485,88	₺64.485,88	₺80.679,29	₺80.679,29	₺100.332,76	₺100.332,76	₺143.392,06	₺143.392,06	₺359.285,63	₺359.285,63	₺438.017,50	₺438.017,50
1	25.150.1615	120 m3 cam elyaf takviyeli (grp) modüller su deposu	₺74.341,44	₺74.341,44	₺92.969,45	₺92.969,45	₺115.647,53	₺115.647,53	₺165.389,40	₺165.389,40	₺414.785,63	₺414.785,63	₺505.338,75	₺505.338,75
GRP MODÜLER SU DEPOSU TOPLAM MALİYET				**₺623.754,86**		**₺782.514,98**		**₺968.512,34**		**₺1.382.211,91**		**₺3.415.090,33**		**₺4.171.159,30**
Toplam Depo Hacmi				**870,00**		**870,00**		**870,00**		**870,00**		**870,00**		**870,00**
1 metreküp depo maliyeti				**₺716,96**		**₺899,44**		**₺1.113,23**		**₺1.588,75**		**₺3.925,39**		**₺4.794,44**
2077	15.315.1002	Ø 100 mm çapında bir ucu muflu sert PVC yağmur borusu temini ve yerine tesbiti	₺17,38	₺36.098,26	₺22,46	₺46.649,42	₺25,93	₺53.856,61	₺37,70	₺78.302,90	₺73,41	₺152.472,57	₺89,65	₺186.203,05
2	25.150.1207	10,00 m3 prizmatik modüler paslanmaz çelik su deposu	₺15.220,31	₺30.440,62	₺18.123,01	₺36.246,02	₺21.711,08	₺43.422,16	₺25.638,53	₺51.277,06	₺65.482,13	₺130.964,26	₺86.298,75	₺172.597,50
3	25.150.1217	50,00 m3 prizmatik modüler paslanmaz çelik su deposu	₺42.542,75	₺127.628,25	₺52.874,23	₺158.622,69	₺63.369,38	₺190.108,14	₺77.014,40	₺231.043,20	₺197.760,50	₺593.281,50	₺266.290,00	₺798.870,00
6	25.150.1221	75,00 m3 prizmatik modüler paslanmaz çelik su deposu	₺58.980,88	₺353.885,28	₺75.836,85	₺455.021,10	₺90.892,09	₺545.352,54	₺107.251,80	₺643.510,80	₺275.476,88	₺1.652.861,28	₺346.837,50	₺2.081.025,00
1	25.150.1224	104,20 m3 prizmatik modüler paslanmaz çelik su deposu	₺79.491,88	₺79.491,88	₺102.154,23	₺102.154,23	₺122.452,38	₺122.452,38	₺144.455,59	₺144.455,59	₺371.545,00	₺371.545,00	₺485.977,50	₺485.977,50
1	25.150.1226	121,50 m3 prizmatik modüler paslanmaz çelik su deposu	₺91.204,00	₺91.204,00	₺113.705,50	₺113.705,50	₺136.299,18	₺136.299,18	₺165.640,54	₺165.640,54	₺426.246,88	₺426.246,88	₺568.210,00	₺568.210,00
PRİZMATİK MODÜLER PASLANMAZ ÇELİK SU DEPOSU TOPLAM MALİYET				**₺718.748,29**		**₺912.398,96**		**₺1.091.491,01**		**₺1.314.230,09**		**₺3.327.371,49**		**₺4.292.883,05**
Toplam Depo Hacmi				**845,70**		**845,70**		**845,70**		**845,70**		**845,70**		**845,70**
1 metreküp depo maliyeti				**₺849,89**		**₺1.078,87**		**₺1.290,64**		**₺1.554,01**		**₺3.934,46**		**₺5.076,13**

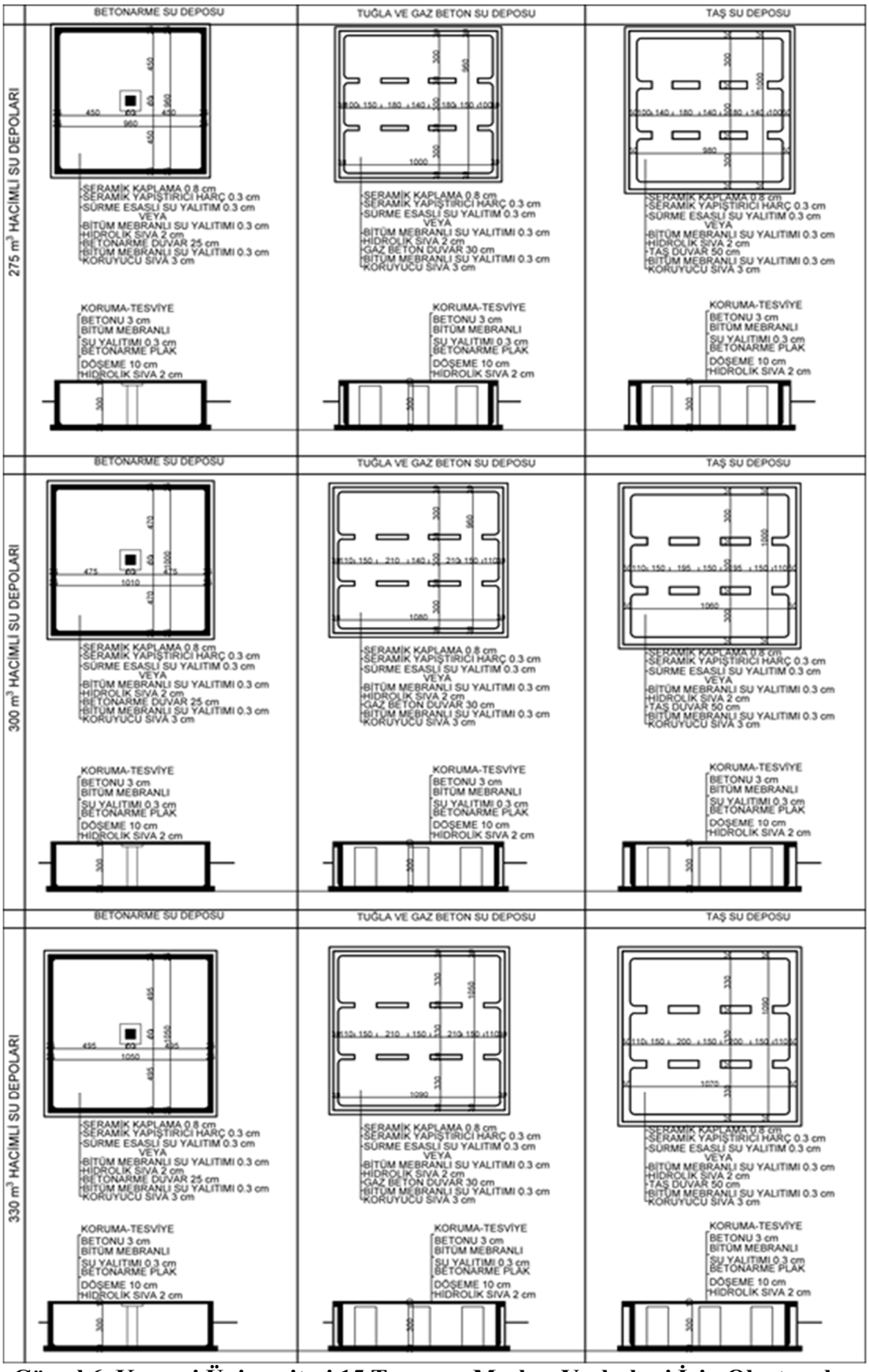
Çizelge 9. Kayseri Üniversitesi 15 Temmuz Yerleşkesinde İç Mekân Depo 2018-2023 Yılları Arası Maliyetlerinin Karşılanma Süresi



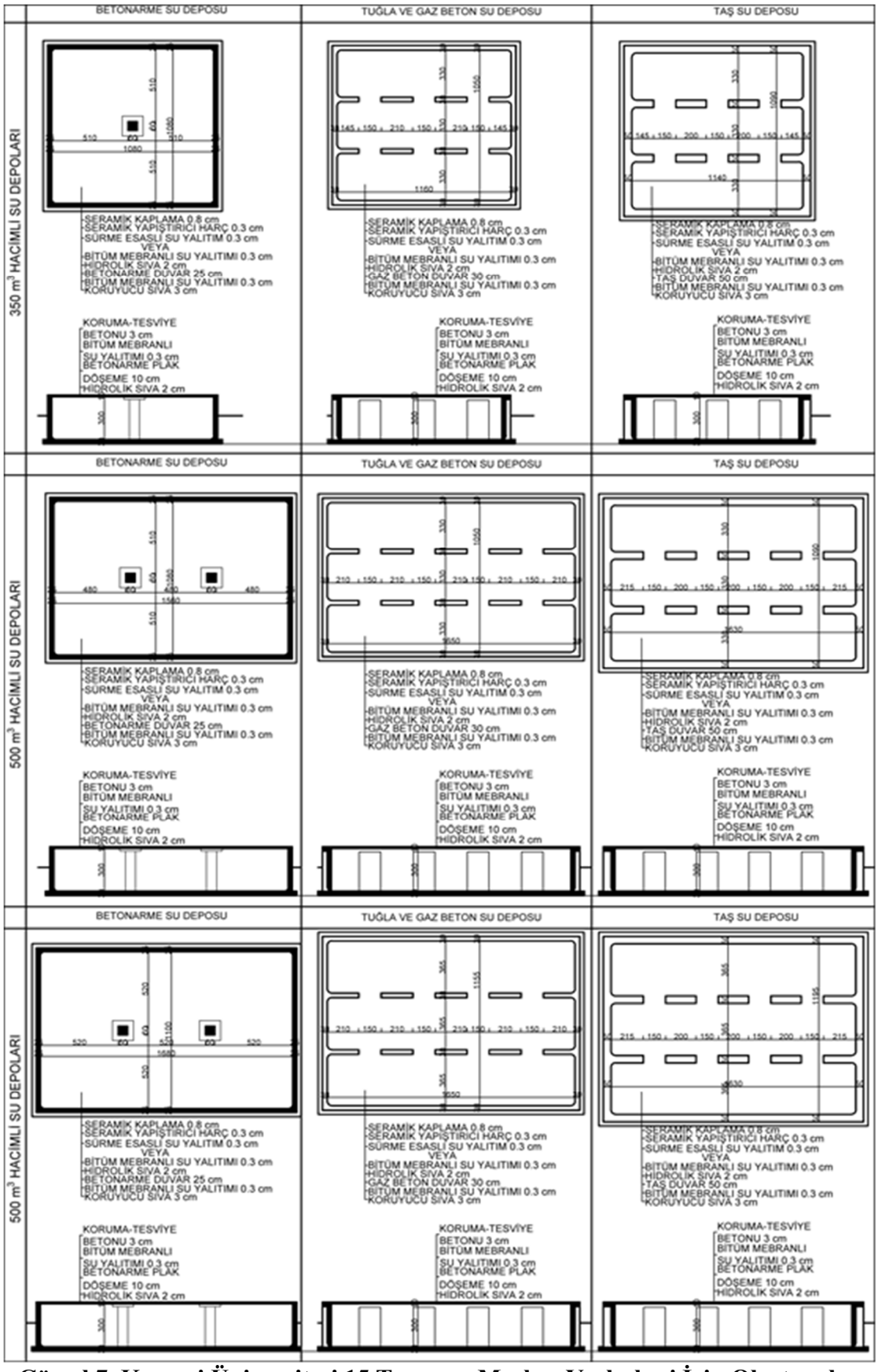
Depolar	1 Yıllık Toplanabilecek En Yüksek Yağış Suyu Miktarı (m³)	2018					2019					2020				
		Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)
Metal Depo	5685,51	718.748,29 ₺	1,17	7.849,42 ₺	1,09%	91,57	912.398,96 ₺	1,36	9.124,11 ₺	1,00%	100,00	1.091.491,01 ₺	1,41	9.459,55 ₺	0,87%	115,39
Polimer Depo		623.754,86 ₺			1,26%	79,47	782.514,98 ₺			1,17%	85,76	968.512,34 ₺			0,98%	102,38
Depolar	1 Yıllık Toplanabilecek En Yüksek Yağış Suyu Miktarı (m³)	2021					2022					2023				
		Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)
Metal Depo	5685,51	1.314.230,09 ₺	1,42	9.526,64 ₺	0,72%	137,95	3.327.371,49 ₺	2,22	14.893,76 ₺	0,45%	223,41	4.292.883,05 ₺	10,7	71.785,25 ₺	1,67%	59,80
Polimer Depo		1.382.211,91 ₺			0,69%	145,09	3.415.090,33 ₺			0,44%	229,30	4.171.159,30 ₺			1,72%	58,11
Depolar	1 Yıllık Toplanabilecek Ortalama Yağış Suyu Miktarı (m³)	2018					2019					2020				
		Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)
Metal Depo	2935,79	718.748,29 ₺	1,17	4.053,15 ₺	0,56%	177,33	912.398,96 ₺	1,36	4.711,35 ₺	0,52%	193,66	1.091.491,01 ₺	1,41	4.884,56 ₺	0,45%	223,46
Polimer Depo		623.754,86 ₺			0,65%	153,89	782.514,98 ₺			0,60%	166,09	968.512,34 ₺			0,50%	198,28
Depolar	1 Yıllık Toplanabilecek Ortalama Yağış Suyu Miktarı (m³)	2021					2022					2023				
		Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)
Metal Depo	2935,79	1.314.230,09 ₺	1,42	4.919,20 ₺	0,37%	267,16	3.327.371,49 ₺	2,22	7.690,59 ₺	0,23%	432,66	4.292.883,05 ₺	10,7	37.067,25 ₺	0,86%	115,81
Polimer Depo		1.382.211,91 ₺			0,36%	280,98	3.415.090,33 ₺			0,23%	444,06	4.171.159,30 ₺			0,89%	112,53
Depolar	1 Yıllık Toplanabilecek En Dörtlük Yağış Suyu Miktarı (m³)	2018					2019					2020				
		Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)
Metal Depo	1375,89	718.748,29 ₺	1,17	1.899,55 ₺	0,26%	378,38	912.398,96 ₺	1,36	2.208,01 ₺	0,24%	413,22	1.091.491,01 ₺	1,41	2.289,21 ₺	0,21%	476,80
Polimer Depo		623.754,86 ₺			0,30%	328,37	782.514,98 ₺			0,28%	354,40	968.512,34 ₺			0,24%	423,08
Depolar	1 Yıllık Toplanabilecek En Dörtlük Yağış Suyu Miktarı (m³)	2021					2022					2023				
		Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)	Depo Maliyeti (Türk Lirası)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılanma Süresi (YIL)
Metal Depo	1375,89	1.314.230,09 ₺	1,42	2.395,44 ₺	0,18%	570,86	3.327.371,49 ₺	2,22	3.604,28 ₺	0,11%	923,17	4.292.883,05 ₺	10,7	17.371,99 ₺	0,40%	247,12
Polimer Depo		1.382.211,91 ₺			0,17%	599,54	3.415.090,33 ₺			0,11%	947,51	4.171.159,30 ₺			0,42%	240,11



Görsel 5. Kayseri Üniversitesi 15 Temmuz Merkez Yerleşkesi İçin Oluşturulan Depolar-1.



Görsel 6. Kayseri Üniversitesi 15 Temmuz Merkez Yerleşkesi İçin Oluşturulan Depolar-2.



Görsel 7. Kayseri Üniversitesi 15 Temmuz Merkez Yerleşkesi İçin Oluşturulan Depolar-3.

Çizelge 10. Kayseri Üniversitesi 15 Temmuz Yerleşkesinde Dış Mekâna Depoları 2018-2019 Yılı İnşa Maliyet ve Verimliliği

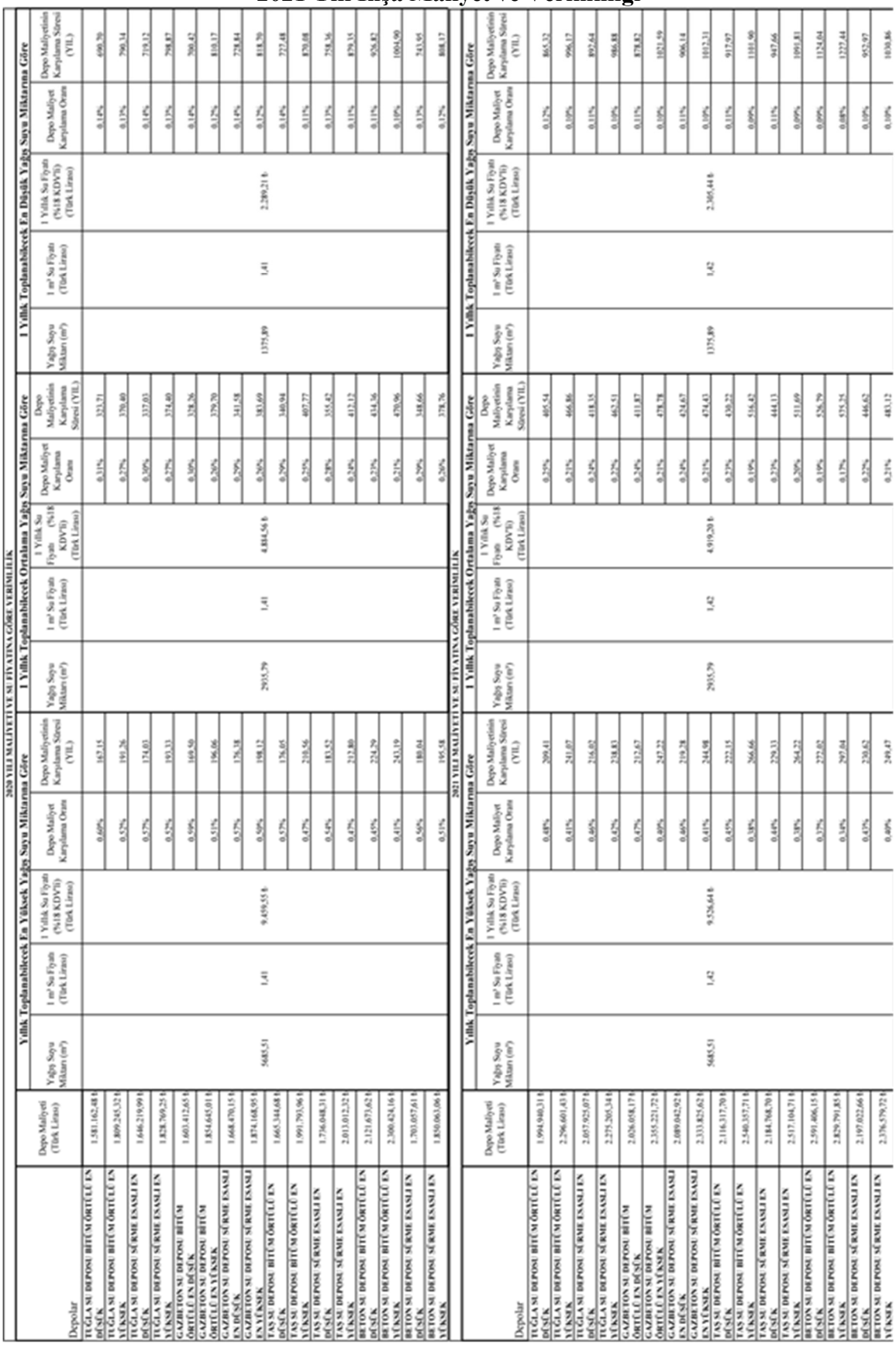
2018 YILI MALİYETİ VE SU FİYATINA GÖRE VERİMLİLİK

Depolar	Depo Maliyeti (Türk Lirası)	Yıllık Toplanabilecek En Yüksek Yağış Suyu Miktarına Göre					1 Yıllık Toplanabilecek Ortalama Yağış Suyu Miktarına Göre					1 Yıllık Toplanabilecek En Düşük Yağış Suyu Miktarına Göre				
		Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)
TEĞLA SU DEPOSU BİTÜMÖRTÜLÜ EN DÜŞÜK	1.156.731,80 ₺				0,48%	147,37										
TEĞLA SU DEPOSU BİTÜMÖRTÜLÜ EN YÜKSEK	1.309.322,96 ₺				0,60%	166,81										
TEĞLA SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.202.198,31 ₺				0,65%	153,16										
TEĞLA SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.328.285,13 ₺				0,99%	169,25										
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	1.180.259,06 ₺				0,67%	150,36										
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	1.348.103,34 ₺				0,85%	171,75										
GAZBETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.225.725,77 ₺				0,64%	156,16										
GAZBETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.367.025,53 ₺	5685,51	1,17	7.849,42 ₺	0,72%	174,16	2935,79	1,17	4.053,15 ₺	0,38%	337,28	1375,89	1,17	1.899,55 ₺	0,14%	719,66
TAŞ SU DEPOSU BİTÜMÖRTÜLÜ DÜŞÜK	1.221.300,76 ₺				0,64%	155,59				0,33%	301,32				0,16%	642,94
TAŞ SU DEPOSU BİTÜMÖRTÜLÜ YÜKSEK	1.439.460,68 ₺				0,55%	183,38				0,28%	355,15				0,13%	757,79
TAŞ SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.270.713,36 ₺				0,62%	161,89				0,32%	313,51				0,15%	668,95
TAŞ SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.460.025,05 ₺				0,54%	186,00				0,28%	360,22				0,13%	768,61
BETON SU DEPOSU BİTÜMÖRTÜLÜ EN DÜŞÜK	1.737.412,76 ₺				0,45%	221,34				0,23%	428,66				0,11%	914,64
BETON SU DEPOSU BİTÜMÖRTÜLÜ EN YÜKSEK	1.858.756,60 ₺				0,42%	235,78				0,22%	456,62				0,10%	974,30
BETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.259.179,74 ₺				0,62%	160,42				0,32%	310,67				0,15%	662,88
BETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.353.996,66 ₺				0,58%	172,50				0,30%	334,06				0,14%	712,80

2019 YILI MALİYETİ VE SU FİYATINA GÖRE VERİMLİLİK

Depolar	Depo Maliyeti (Türk Lirası)	Yıllık Toplanabilecek En Yüksek Yağış Suyu Miktarına Göre					1 Yıllık Toplanabilecek Ortalama Yağış Suyu Miktarına Göre					1 Yıllık Toplanabilecek En Düşük Yağış Suyu Miktarına Göre				
		Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)
TEĞLA SU DEPOSU BİTÜMÖRTÜLÜ EN DÜŞÜK	1.357.997,82 ₺				0,62%	148,84				0,35%	288,74				0,16%	615,03
TEĞLA SU DEPOSU BİTÜMÖRTÜLÜ EN YÜKSEK	1.548.823,56 ₺				0,79%	169,75				0,30%	338,74				0,14%	701,45
TEĞLA SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.418.976,69 ₺				0,64%	155,52				0,33%	301,18				0,16%	642,64
TEĞLA SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.581.720,06 ₺				0,58%	173,36				0,30%	335,73				0,14%	716,35
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	1.384.546,92 ₺				0,66%	151,75				0,34%	293,87				0,16%	627,05
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	1.595.392,42 ₺				0,57%	174,85				0,30%	338,63				0,14%	722,54
GAZBETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.445.525,80 ₺				0,63%	158,43				0,33%	306,82				0,15%	654,67
GAZBETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.628.288,92 ₺	5685,51	1,36	9.124,11 ₺	0,56%	178,46	2935,79	1,36	4.711,35 ₺	0,29%	345,61	1375,89	1,36	2.208,03 ₺	0,14%	737,44
TAŞ SU DEPOSU BİTÜMÖRTÜLÜ DÜŞÜK	1.435.201,88 ₺				0,64%	157,30				0,33%	304,63				0,15%	649,99
TAŞ SU DEPOSU BİTÜMÖRTÜLÜ YÜKSEK	1.708.938,29 ₺				0,53%	187,30				0,28%	362,73				0,13%	773,97
TAŞ SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.501.472,90 ₺				0,61%	164,56				0,31%	318,69				0,15%	680,01
TAŞ SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.744.689,76 ₺				0,52%	191,22				0,27%	370,32				0,13%	790,16
BETON SU DEPOSU BİTÜMÖRTÜLÜ EN DÜŞÜK	1.923.300,91 ₺				0,47%	210,79				0,24%	408,31				0,11%	871,05
BETON SU DEPOSU BİTÜMÖRTÜLÜ EN YÜKSEK	2.072.601,11 ₺				0,44%	227,16				0,22%	439,92				0,11%	938,67
BETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.478.767,04 ₺				0,62%	162,07				0,32%	313,87				0,15%	669,72
BETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.608.489,09 ₺				0,57%	176,29				0,29%	341,41				0,14%	728,47

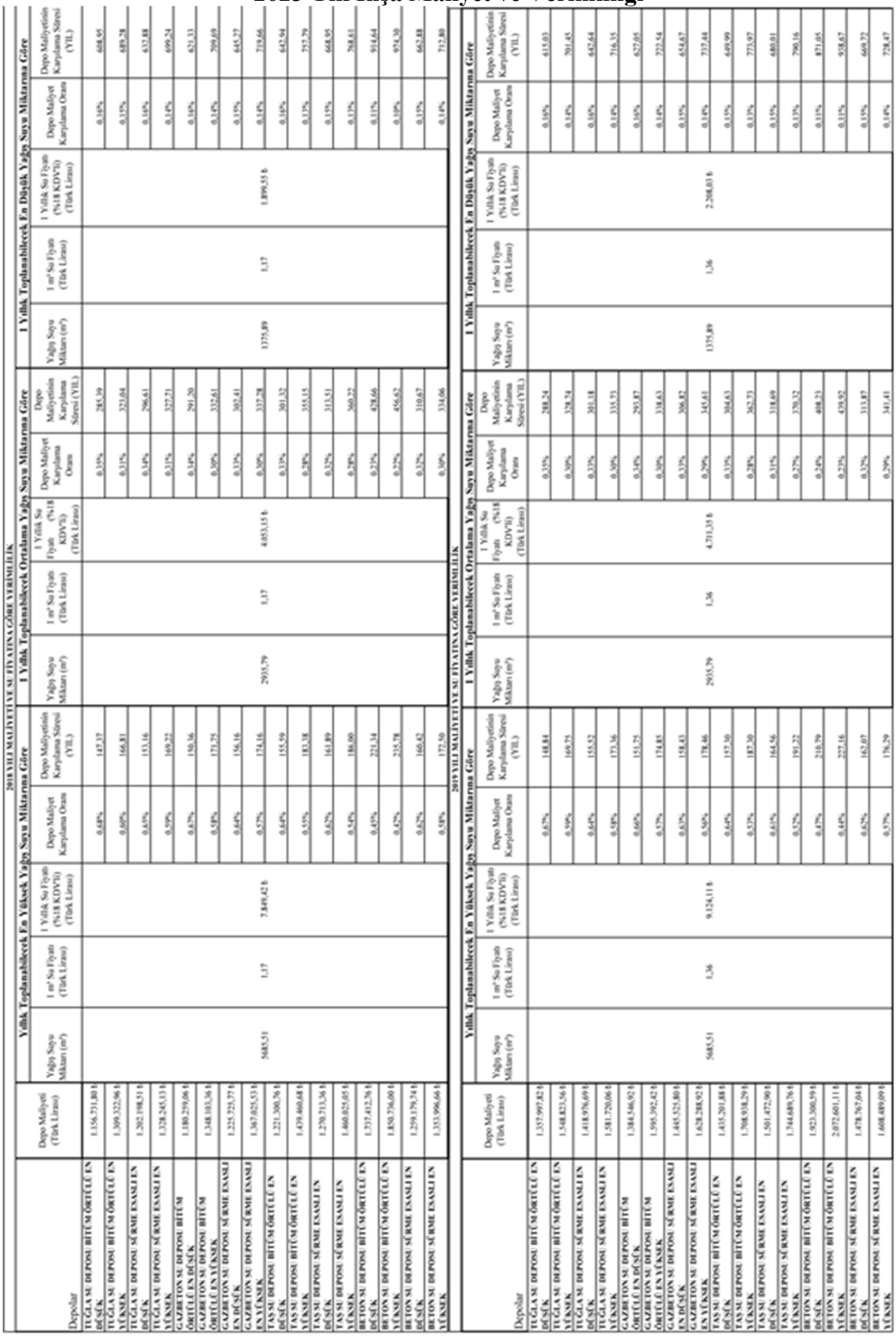
Çizelge 11. Kayseri Üniversitesi 15 Temmuz Yerleşkesinde Dış Mekâna Depoları 2020-2021 Yılı İnşa Maliyet ve Verimliliği



Depolar	Depo Maliyeti (Türk Lirası)	2020 YILI MALİYETİ VE SU FİYATINA GÖRE VERİMLİLİK															
		Yıllık Toplanabilecek En Yüksek Yağış Suyu Miktarına Göre					Yıllık Toplanabilecek Ortalama Yağış Suyu Miktarına Göre					Yıllık Toplanabilecek En Düşük Yağış Suyu Miktarına Göre					
		Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)
TUĞLA SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	1.581.162,48 ₺				0,69%	165,15				0,31%	323,71				0,14%	699,70
TUĞLA SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	1.809.245,32 ₺				0,52%	191,26				0,27%	370,40				0,13%	790,34
TUĞLA SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.646.219,99 ₺				0,57%	174,03				0,30%	337,03				0,14%	719,12
TUĞLA SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.828.769,25 ₺				0,52%	193,33				0,27%	374,40				0,13%	798,87
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	1.603.412,65 ₺				0,59%	169,50				0,30%	328,26				0,14%	700,43
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	1.854.645,01 ₺				0,51%	196,06				0,26%	379,70				0,12%	810,17
GAZBETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.668.470,15 ₺				0,57%	176,38				0,29%	341,58				0,14%	728,84
GAZBETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.874.168,95 ₺	5685,51	1,41	9.459,55 ₺	0,50%	198,12	2935,79	1,41	4.884,56 ₺	0,26%	383,69	1375,89	1,41	2.289,21 ₺	0,12%	818,70
TAŞ SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	1.665.344,68 ₺				0,57%	176,05				0,29%	340,94				0,14%	727,48
TAŞ SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	1.991.793,96 ₺				0,47%	210,56				0,25%	407,77				0,11%	870,88
TAŞ SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.776.048,31 ₺				0,54%	183,52				0,28%	355,42				0,13%	758,36
TAŞ SU DEPOSU SÜRME ESASLI EN YÜKSEK	2.013.012,32 ₺				0,47%	212,80				0,24%	412,12				0,11%	879,35
BETON SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	2.121.673,62 ₺				0,45%	224,29				0,23%	434,36				0,11%	926,82
BETON SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	2.300.424,16 ₺				0,41%	243,19				0,21%	470,96				0,10%	1004,99
BETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	1.703.057,61 ₺				0,56%	180,04				0,29%	348,66				0,13%	743,95
BETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	1.850.063,06 ₺				0,51%	195,58				0,26%	378,76				0,12%	808,17

Depolar	Depo Maliyeti (Türk Lirası)	2021 YILI MALİYETİ VE SU FİYATINA GÖRE VERİMLİLİK															
		Yıllık Toplanabilecek En Yüksek Yağış Suyu Miktarına Göre					Yıllık Toplanabilecek Ortalama Yağış Suyu Miktarına Göre					Yıllık Toplanabilecek En Düşük Yağış Suyu Miktarına Göre					
		Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)	Yağış Suyu Miktarı (m³)	1 m³ Su Fiyatı (Türk Lirası)	1 Yıllık Su Fiyatı (%18 KDV'li) (Türk Lirası)	Depo Maliyet Karşılama Oranı	Depo Maliyetinin Karşılama Süresi (YIL)
TUĞLA SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	1.994.940,31 ₺				0,48%	209,41				0,25%	405,54				0,12%	865,32
TUĞLA SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	2.296.601,43 ₺				0,41%	241,07				0,21%	466,86				0,10%	996,17
TUĞLA SU DEPOSU SÜRME ESASLI EN DÜŞÜK	2.057.925,07 ₺				0,46%	216,02				0,24%	418,35				0,11%	892,64
TUĞLA SU DEPOSU SÜRME ESASLI EN YÜKSEK	2.275.305,34 ₺				0,42%	238,83				0,22%	462,51				0,10%	986,88
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	2.026.058,17 ₺				0,47%	212,67				0,24%	411,87				0,11%	878,82
GAZBETON SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	2.355.221,72 ₺				0,40%	247,22				0,21%	478,78				0,10%	1021,59
GAZBETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	2.089.042,92 ₺				0,46%	219,28				0,24%	424,67				0,11%	906,14
GAZBETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	2.333.825,62 ₺	5685,51	1,42	9.526,64 ₺	0,41%	244,98	2935,79	1,42	4.919,20 ₺	0,21%	474,43	1375,89	1,42	2.305,44 ₺	0,10%	1012,21
TAŞ SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	2.116.317,70 ₺				0,45%	222,15				0,22%	430,22				0,11%	917,97
TAŞ SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	2.540.357,71 ₺				0,38%	266,66				0,19%	516,42				0,09%	1101,90
TAŞ SU DEPOSU SÜRME ESASLI EN DÜŞÜK	2.184.768,70 ₺				0,44%	229,33				0,23%	444,13				0,11%	947,66
TAŞ SU DEPOSU SÜRME ESASLI EN YÜKSEK	2.517.104,71 ₺				0,38%	264,22				0,20%	511,69				0,09%	1091,81
BETON SU DEPOSU BİTÜM ÖRTÜLÜ EN DÜŞÜK	2.591.466,15 ₺				0,37%	272,03				0,19%	526,79				0,09%	1124,04
BETON SU DEPOSU BİTÜM ÖRTÜLÜ EN YÜKSEK	2.829.791,85 ₺				0,34%	297,04				0,17%	575,25				0,08%	1227,44
BETON SU DEPOSU SÜRME ESASLI EN DÜŞÜK	2.197.022,66 ₺				0,43%	230,62				0,22%	446,62				0,10%	953,97
BETON SU DEPOSU SÜRME ESASLI EN YÜKSEK	2.376.579,72 ₺				0,40%	249,47				0,21%	483,12				0,10%	1030,86

Çizelge 12. Kayseri Üniversitesi 15 Temmuz Yerleşkesinde Dış Mekâna Depoları 2022-2023 Yılı İnşa Maliyet ve Verimliliği



Çizelge 10, Çizelge 11 ve Çizelge 12'ye bakıldığında en düşük maliyet tuğla ve bitüm örtülü su yalıtım malzemeleri ile yapılan depolarda, en yüksek maliyetlerin ise 2022 yılına kadar beton ve sürme esaslı su yalıtım malzemeleri ile yapılanlar depolarda iken 2022 ve 2023 yılında taş ve bitüm örtülü su yalıtım malzemeleri ile yapılan depolarda olduğu görülmektedir. 2018 yılı maliyet ve su fiyatlarına göre depo maliyetlerinin en yüksek yağış suyu toplanma durumunda 147-235, ortalama yağış suyu toplanması durumunda 285-456 yıl, en düşük yağış suyu toplanma durumunda ise 608-974 yılda karşılanacağı görülmektedir. 2022 yılına gelindiğinde bu sürelerin en yüksek yağış durumunda 340-420, ortalama yağış durumunda 658-813, en düşük yağış durumunda ise 1405-1735 yıl arasına çıkacağı hesaplanmıştır. 2023 yılında ise en yüksek yağış durumunda 94-115, ortalama yağışlarda 182-222, en düşük yağışlarda ise 389-475 yıla düştüğü görülmektedir. Genel olarak değerlendirme yapıldığında inşaat başta olmak üzere tüm fiyatların yıllık olarak arttığı görülmektedir. Depoların kendi maliyetini çıkaracağı açık olup bu sürenin yağış miktarı ve su fiyatlarına bağlı olarak kısalıp uzamaktadır.

4. GENEL DEĞERLENDİRME SONUÇ VE ÖNERİLER

Yağış suyu toplama sistemleri ilk yatırımda pahalı uzun vadede tasarruf sağlayacak bir sistemdir. Ancak bu tasarruf süresi iklimsel verilere, yapının yeni ve eski olma durumuna, yapı işlevine, bölgesel su fiyatlarına, çatı kaplama malzemesine ve depolara bağlı olarak değişmektedir.

Bina ölçeğinde değerlendirildiğinde; yağış suyunun genel olarak temizlik, wc suyu, bahçe sulama, araç yıkama, yangın söndürme gibi işlevlerde kullanılabileceği yapılarda toplanarak değerlendirilmesi önemlidir. Bu amaçla; eğitim, sağlık, ulaşım, kamu hizmet kurumları, iş merkezleri, alışveriş merkezleri, oteller, spor tesisleri, fabrikalarda yağış sularının toplanmasına önem verilmelidir. Bu tür yapılarda sular çok fazla arıtma işlemine tabi tutulmadan kullanılabileceği için planlamalarında sadece depolama alanlarının ayrılması yeterli olacaktır. Suyun hem kullanım hem içme suyu olarak tüketildiği konutlarda yağış suları yeterli arıtma işlemleri yapıldıktan sonra kullanılmalıdır. Bu amaçla planlamalarda arıtma birimlerine yer verilmelidir.

Binalar hâkim rüzgâr yönü dikkate alınarak konumlandırılmalı, yapının mimari tasarım bütünlüğü içerisinde geniş saçaklar oluşturularak su toplama alanı genişletilmeli, su emme oranı düşük çatı kaplama malzemeleri tercih edilmelidir. Toplanan sular yer üstünde depolanacaksa güneş ışığı geçirmeyen malzemelerden yapılacak depolar, yer altında ya da yapı içerisinde toplanacaksa müdahale etme imkânı kolay olan depolar tercih edilmelidir. Mevcut yapılarda yağış sularının depolanması için yapı içerisinde bodrum katlar öncelikli tercih alanları olmalıdır. Eğer bodrum katta alan yoksa ve yapı taşıyıcısına çok büyük bir etki oluşturmayacaksa su depoları çatı arası alanlara kurulabilir. Ancak bu durumda depoların yalıtımı iyi yapılmalıdır. Aksi takdirde su yapıya zarar verecektir.

Yurt dışında pek çok ülkede teşvik kapsamında olan yağış sularının toplanarak yapı içerisinde kullanımı ülkemizde de desteklenmektedir. İMAR YÖNETMELİĞİNE GÖRE KAKS HESABINA DAHİL EDİLMEYEN YAĞIŞ SUYU DEPOLARI özellikle suyun içme suyu dışında kullanıldığı yapılarda zorunlu hale getirilmeli ve teşvik edilmelidir. Böylelikle kaynaklar daha etkin bir şekilde kullanılarak daha iyi bir ortamda yaşama destek olunabileceği düşünülmektedir.

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