

Keeping Planet “Water Earth” Safe and Sound: a challenge to Science and Technology

July 19 - 22, 2015
Porto, Portugal

Edited by
Claudio da Rocha Brito
Melany M. Ciampi

SHERO
Safety, Health and Environment
Research Organization



Science and Education
Research Council

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BOOK OF ABSTRACTS

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Message from the General Chair



SHEWC'2015 – XV Safety, Health and Environment World Congress happens in Portugal and in a city that gathers history and business, Porto - the "city of work", where commerce is a great part of its history, from the great trading river at the heart of the city to the baroque churches and neoclassical buildings.

Porto is Portugal's second-largest metropolis, an age-old city that is at the same time a modern one. The old town, centered at Ribeira, was built on the hills overlooking the Douro River, and today is a UNESCO World Heritage Site. Some of the attractions are the 14th-century São Francisco church, as well as the local port wine cellars, mostly located across the river at Vila Nova de Gaia. Besides its history and the Port Wine it's known for its School of Architecture that counts with famous names such as Alvaro Siza Vieira e Eduardo Souto de Moura.

The 15th edition of the **SHEWC** unite many researchers to discuss and bring solutions to environment issues not only the use of water and land but also social aspects, the safety, the global economy impact on human development, among others. SHEWC has become one important congress because it brings the best of research and projects for the enhancement of use of natural resources use, one key element for success of human future.

The theme of the congress "**Keeping Planet "Water Earth" Safe and Sound: a challenge to Science and Technology**" is a very serious challenge for humanity once it is the fluid of life so important for all. Many pollutants threaten water supplies, and although public awareness of the need to better manage and protect water has grown over the last decade, economic criteria and political considerations still tend to drive water policy at all levels. Clean drinking water has become a rare commodity, an economic and political issue as the human population fights for this resource due to the global population growth. However there are practical solutions to freshwater conservation but we have to take actions now.

So **SHEWC'2015** is a congress that aims to provide the scientific community with up-to-date information in safety, health and environment fields, counting with the presence of experts from across the globe. The ideas, opinions and professionals contributions are showed in lectures, plenary sessions, presentations of papers and workshops. There will be an opening session with the participation of promoters of the event and several authorities. At the end, in a closing session presents the main results of the event. It shows cutting edge useful information in environment, health and safety and provides a rich encounter for the community.

As the General Chair of **SHEWC'2015** on behalf of COPEC team I am pleased to thank the host institution **OERN** (Institute of Engineers of Portugal – North Region) that embraced the organization of this congress. It is imperative to acknowledge and thank in special all the people involved in the organization of this edition of SHEWC such as the President of **OERN Eng. Fernando de Almeida Santos**, Local Chair of **SHEWC'2015**, the Director of **OERN Prof. Carlos Afonso Teixeira**, Vice-local Chair of **SHEWC'2015** and **Mr. Miguel Angelo Souza**, **OERN** Manager who have worked diligently for the accomplishment of a successful event.

I would like also to thank **Prof. Margarida Correia Marques**, Professor of UTAD and **Prof. João Pedro Couto**, Professor of UMinho for organizing special track sessions.

The **XV Safety, Health and Environment World Congress – SHEWC'2015** is organized by **COPEC – Science and Education Research Council** and promoted by **SHERO – Safety, Health and Environment Research Organization** in Technical Cooperation (in alphabetical order): AAMP (Fishing Museum Friends Society), ABENC (Brazilian Society of Civil Engineers), ABENGE (Brazilian Society for Engineering Education), ABO (Brazilian Dental Association), AENUI (Asociación de Enseñantes Universitarios de la Informática), AGERCO (Brazilian Agency for Coastal Management), ASEE (American Society for Engineering Education), ASIBEI (Iberian-American Association of Engineering Education Institutions), GCMM (Global Congress on Manufacturing and Management), IEEE-Ed.Soc. (Education Society of the Institute of Electrical and Electronics Engineers), IFEEES (International Federation of Engineering Education Societies), IGIP (Internationale Gesellschaft für Ingenieurpädagogik), INTERTECH (International Council for Engineering and Technology Education), IRCWR (International Reference Center for Water Reuse), ISTECH (Iberian American Science & Technology Education Consortium), Porto Gente (PortFolk), RBE (Brazilian Network of Engineering), RCI (Réseau Carthagène d'Ingénierie), SBA (Brazilian Automation Society), SBE (Brazilian Society of Ecotoxicology), SEFI (Société Européenne pour la Formation des Ingénieurs), SPEE (Portuguese Society for Engineering Education), SPEED (Student Platform for Engineering Education Development), WCCA (World Council on Communication and Arts) and WCSEIT (World Council on Systems Engineering and Information Technology).

I could not forget to thank to our sponsors FAPESP (State of São Paulo Research Foundation), CNPq (National Council for Scientific and Technological Development) and CAPES (Coordination for Improvement of Personnel of Superior Level).

I want to thank the authors and participants for their collaborations and willing to share their contributions for the development of science and technology for the betterment of humanity in their fields of expertise.

Hoping you enjoy **SHEWC'2015!**

Prof. Dr. Claudio da Rocha Brito
GENERAL CHAIR
President of COPEC

Message from the Technical Program Chair



“Keeping Planet “Water Earth” Safe and Sound: a challenge to Science and Technology” is the theme of this edition of SHEWC that has counted with valuable collaborations of great importance for the achievement of sustainable development of nations and peoples.

It is very rewarding for me to be the Technical Program Chair of **SHEWC'2015 – XV Safety, Health and Environment World Congress**. It is another successful event that provides high quality discussions by the international scientific community willing to show their achievements in their fields of expertise.

This year the congress brings many interesting collaborations of authors about the search for a more sustainable way of using natural resources for nations and peoples also bringing solutions for issues that mainly affects the life on earth for future generations.

It is important to address my special thanks to the local organizers and the host institution, the **OERN** (Institute of Engineers of Portugal – North Region), the authors for their contributions as well as the reviewers' hard work dedicating time and efforts for the revision process. I also want to point out the session's lecturer that brings interesting topics related to the theme.

I am sure that all the participants enjoy the conference as well as the beautiful city of Porto.

Prof. Dr. Melany M. Ciampi
TECHNICAL PROGRAM CHAIR
President of SHERO

Message from the Local Chair



The **Ordem dos Engenheiros da Região Norte** (Institute of Engineers of Portugal – North Region) is pleased to receive, as Chair of the Local Committee, the **XV Safety, Health and Environment World Congress – SHEWC'2015**, to be held in Porto.

It is an honor for the **Ordem dos Engenheiros da Região Norte** to organize jointly with the **Science and Education Research Council – COPEC** another event, of high scientific quality and international reference in this field that has been celebrated.

Eng. Fernando de Almeida Santos
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President of OERN

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Keeping Planet “Water Earth” Safe and Sound: a challenge to Science and Technology

PROGRAM

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Melany M. Ciampi

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Research Council

SHEWC'2015 – Program at Glance

Time	Sunday 19	Monday 20	Tuesday 21	Wednesday 22	Time	
8:30 am 9:00 am	Free	Registration	Registration	Registration	8:30 am 9:00 am	
9:00 am 9:30 am		Opening Session	Special Track II	Technical Sessions	9:00 am 9:30 am	
9:30 am 10:00 am					Plenary Session	10:00 am 10:30 am
10:00 am 10:30 am		Coffee Break				Coffee Break
10:30 am 11:00 am		Special Track I	Technical Sessions	Technical Sessions	11:00 am 11:30 am	
11:00 am 11:30 am					11:30 am 12:00 pm	
11:30 am 12:00 pm					12:00 pm 12:30 pm	
12:00 pm 12:30 pm					12:30 pm 1:00 pm	
12:30 pm 1:00 pm					Lunch	Lunch
1:00 pm 1:30 pm		1:30 pm 2:00 pm				
1:30 pm 2:00 pm		2:00 pm 2:30 pm				
2:00 pm 2:30 pm		Registration	2:30 pm 3:00 pm			
2:30 pm 3:00 pm		Workshop	Technical Sessions	Technical Sessions	Technical Sessions	3:00 pm 3:30 pm
3:00 pm 3:30 pm						3:30 pm 4:00 pm
3:30 pm 4:00 pm	Coffee Break	Coffee Break	Coffee Break	Coffee Break	4:00 pm 4:30 pm	
4:00 pm 4:30 pm					4:30 pm 5:00 pm	
4:30 pm 5:00 pm	Workshop	Technical Sessions	Technical Sessions	Closing Session	5:00 pm 5:30 pm	
5:00 pm 5:30 pm					5:30 pm 6:00 pm	
5:30 pm 6:00 pm					Welcome Cocktail	Free
6:00 pm 6:30 pm	6:30 pm 7:00 pm					
6:30 pm 7:00 pm	7:00 pm 7:30 pm					
7:00 pm 7:30 pm	7:30 pm 8:00 pm					
7:30 pm 8:00 pm	Congress Dinner (for adhesion)	8:00 pm 8:30 pm				
8:00 pm 8:30 pm		8:30 pm 9:00 pm				
8:30 pm 9:00 pm		9:00 pm 9:30 pm				
9:00 pm 9:30 pm	9:30 pm 10:00 pm					
9:30 pm 10:00 pm						

SESSION AND PRESENTATION CODES

Codes are used to determine when and where a paper is presented.

Technical Session Coding

A four- character designator is associated with each technical session, as in **LDT**

Where:

L – is a letter that designates the language of the session:

E – designates English sessions and papers;

P – designates Portuguese sessions and papers;

D – is a letter that designates the day of the session:

M – designates Monday sessions and papers;

T – designates Tuesday sessions and papers.

W – designates Wednesday sessions and papers.

T – is a number that designates the time slot for the session:

1 is early afternoon (9:00 am - 10:30 am);

2 is late morning (11:00 am - 12:30 pm);

3 is early afternoon (2:30 pm - 4:00 pm);

4 is late afternoon (4:30 pm - 6:00 pm);

Note.

Five minutes will be allowed for introductions and instructions at the beginning of each session.

Each paper will be given 10 minutes for the total presentation, with two minutes for questions.

All papers will start in 12 – minutes increments to allow conference attendees to “session hop” hear papers of interest. If there is a no-show author in a session, a 12 - minutes break will be called. ***Papers will not be moved up in sessions.***

Papers times for sessions are shown below. (H is a letter that designates hour of the day).

Session Begins	H:00	H:30
First paper	H:05	H:35
Second Paper	H:17	H:47
Third Paper	H:29	H:59
Fourth Paper	H:41	(H+1):11
Fifth paper	H:53	(H+1):23
Sixth paper	(H+1):05	(H+1):35
Seventh paper	(H+1):17	(H+1):47
Session Ends	(H+1):29	(H+1):59

Sunday – July, 19

**2:00 pm – 2:30 pm
REGISTRATION**

**2:30 pm – 6:00 pm
WORKSHOP**

HUMAN ECOLOGY IN 21ST CENTURY: ELDER POPULATION GROWTH AND ITS IMPACTS IN GLOBAL ECONOMY

Prof. Dr. Melany M. Ciampi – President of SHERO and **Prof. Dr. Claudio da Rocha Brito** –
President of COPEC

**6:00 pm – 8:00 pm
WELCOME COCKTAIL**

All the participants are welcome to join us for the “Welcome Cocktail” on Sunday at 6 pm. It is a nice start for a period of four days of hard work. It is the opportunity to get in touch with other colleagues and make new friends in a pleasant environment.

Monday – July, 20

8:30 am – 4:30 pm
REGISTRATION

9:00 am – 10:00 am
OPENING SESSION

Chair: **Prof. Claudio da Rocha Brito** – General Chair of SHEWC'2015
Prof. Melany M. Ciampi – Technical Program Chair of SHEWC'2015
Prof. Fernando de Almeida Santos – Local Chair of SHEWC'2015
Prof. Carlos Afonso Teixeira – Vice Local Chair of SHEWC'2015

10:00 am – 10:30 am
PLENARY SESSION I

Chair: **Prof. Claudio da Rocha Brito** – General Chair of SHEWC'2015
Title: **KEEPING PLANET “WATER EARTH” SAFE AND SOUND: A CHALLENGE TO SCIENCE AND TECHNOLOGY**
Speaker: **Prof. Melany M. Ciampi** – Technical Program Chair of SHEWC'2015

10:30 am – 11:00 am
Coffee Break

11:00 am – 12:30 pm
SPECIAL TRACK I – PM2

Chair: **Prof. Margarida Correia Marques** – Professor of University of Trás-os-Montes e Alto Douro (UTAD), Vila Real, Portugal
Title: **METHODOLOGICAL CONTRIBUTIONS TO SOLVING ENVIRONMENTAL PROBLEMS AND SUPPORT DECISION-MAKING: CASE STUDIES**

MODELLING OF CO₂ CONCENTRATION IN A CLASSROOM WITH NATURAL VENTILATION IN A PORTUGUESE UNIVERSITY

Vânia Seixas, Irene Oliveira, Margarida Correia Marques.....27

EDUCATION AND ENVIRONMENTAL AWARENESS OF THE RESPONSIBLE FOR THE MAINTENANCE OF THE ARBORETUM OF RIO DE JANEIRO BOTANIC GARDEN - BRAZIL

Jussara Izabel Corrêa Cabral, Margarida Correia Marques.....28

AGRICULTURE, AGRO-INDUSTRY AND RISK ANALYSIS

Ana Margarida Mascarenhas, Ana Paula Silva, Margarida Correia Marques.....28

ENVIRONMENTAL RISKS AND METHODOLOGY FOR A LOCATION OF A METALWORKING

Cristiana Fernandes Rodrigues, Margarida Correia Marques.....28

ENVIRONMENTAL RISKS FACTORS IN ENVIRONMENTAL IMPACT STUDIES OF PROPOSAL QUARRY INDUSTRY PROJECTS

Cristina Filipa Félix de Sá, Margarida Correia Marques28

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN® CERTIFICATION SYSTEM APPLIED TO A BUILDING IN BELO HORIZONTE, BRAZIL

Janeth Vieira da Silva, Anabela Gonçalves Paiva, Caroline Dominguez, Margarida Correia Marques29

12:30 pm – 2:30 pm
LUNCH

**2:30 pm – 3:00 pm
TECHNICAL SESSION**

Session EM3

Chairs

Orlando R. Baiocchi
Irina Makarova

DRONE-BASED WIRELESS NETWORK SENSORS FOR FOREST FIRE DETECTION <i>C. M. Barrett, R. Landowski, J. Sheng, Orlando R. Baiocchi</i>	29
IMPROVING THE SUSTAINABILITY OF URBAN AREAS THROUGH TRANSPORT SYSTEM MANAGEMENT <i>Irina Makarova, Gennady Mavrin, Eduard Belyaev, Vadim Mavrin, Ilhar Suleimanov</i>	29

**3:00 pm – 4:00 pm
TECHNICAL SESSION**

Session PM3

Chairs

Raquel de Paula Soares
Edmilson Roberto Braga

TOURISM AS A VECTOR FOR ENVIRONMENTAL, SOCIAL, CULTURAL AND ECONOMIC RISEN: VISITING SCRIPT OF TO THE PROJECT “WORKSHOP ART IN THE QUOTAS”, CUBATÃO, SÃO PAULO, BRAZIL <i>Aristides Faria Lopes dos Santos, Renato Marchesini, Renata Antunes da Cruz</i>	30
FLUORESCENCE BASED OPTICAL FIBER SENSOR FOR DISSOLVED OXYGEN DETECTION IN WATER MEDIA <i>Fátima C. de Oliveira, Mauro Sérgio Braga, Guilherme M. Gonçalves, Walter J. Salcedo</i>	30
TECHNICAL ASPECTS OF THE PRODUCTION PROCESS OF ALOE VERA GEL BIODIESEL: PRE-TREATMENT AND TRASESTERIFICATION <i>Marcelo Silva, André E. Machado, Barbara C. A. da Rocha, Ana Carolina R. de Castro, Thaiane de Castro Mello, Lorrán Santana, Rayanne Murras, Bruno Carvalho</i>	30
A NEW GENERALIZATION FOR NAIVE BAYES STYLE FUZZY PROBABILISTIC CLASSIFIER <i>Ronei Marcos de Moraes</i>	31
SUSTAINABILITY IN CONSTRUCTION PROJECTS: A MULTICRITERIA MATRIX BASED ON RISKS <i>Simone Zappe Fernandes, Cláudia do Rosário Vaz Morgado</i>	31
COST REDUCTION THROUGH ENVIRONMENTAL EDUCATION: A CASE STUDY IN AN AUTOMOTIVE COMPANY <i>Raquel de Paula Soares</i>	31
PERFORMANCE OF BRAZILIAN AND GERMAN WASTE EXCHANGE PLATFORMS <i>Raquel de Paula Soares, Marielle Feilstrecker, Klaus Martin Fischer</i>	31
SENSOR DEVICE BASED IN 1-(2-PYRIDYLAZO)-2-NAPHTHOL (PAN) MOLECULES EMBEDDED IN PVC THIN FILM FOR HEAVY METAL RECOGNITION AND CLASSIFICATION IN WATER MEDIA <i>Edmilson Roberto Braga, Mauro Sérgio Braga, Walter Borysow, Osmar F. Gomes, Walter J. Salcedo</i>	32
INTEGRATED MULTI-SPECTRAL OPTOELECTRONIC SENSOR FOR O₂ AND NO₂ GASES <i>Mauro Sérgio Braga, Daniela S. Santos, Guilherme M. Gonçalves, Osmar F. Gomes, Walter J. Salcedo</i>	32

**4:00 pm – 4:30 pm
Coffee Break**

**4:30 pm – 5:30 pm
TECHNICAL SESSIONS**

Session PM4

Chairs

Katia Tannous
Carolina Cione Coppi

ACRE RIVER, THE RIVER OF HORSESHOES, A RIVER THAT SNAKES IN THE LIMIT BETWEEN TWO NATIONS	
<i>Pedro José da Silva</i>	32
PROPOSAL FOR LIQUID WASTEWATER TREATMENT FROM ELECTROPLATING INDUSTRY	
<i>Carolina Cione Coppi, Katia Tannous</i>	33
EVALUATION OF RENEWABLE ENERGY EFFICIENCY OF ALTERNATIVE BIOMASSES FOR ELECTRICITY GENERATION	
<i>Katia Tannous, Rodrigo Allegretti Artioli, Vadson Bastos do Carmo</i>	33
RIVERS, BANDITS, OUT OF LAWS	
<i>Pedro José da Silva</i>	33
APPLICATION OF WIRELESS SENSOR NETWORK IN MONITORING ENVIRONMENTAL VARIABLES: TEMPERATURE AND RELATIVE HUMIDITY	
<i>Paulo Henrique Cruz Pereira, Marcelo Sampaio Alencar, Orlando R. Baiocchi</i>	33
THE USE OF ORNAMENTAL ROCKS RESIDUES IN HYDRAULIC TILE INSERTS	
<i>Maria Antonina Magalhães Coelho, Joyce Araújo Máximo da Silva, Nuria Fernandez Castro</i>	34
WATER REUSE APPLICATION IN UNIFAMILIAR GREY RESIDENCES	
<i>Marco Antonio Rossi, Mariana Cintra Elias</i>	34
PROTOTYPE OF AN ELECTRIC TRICYCLE APPLIED TO SAFE AND HEALTHY WORKPLACE ACCESSIBILITY, PROVIDING SOCIAL INCLUSION	
<i>Claudiner Mendes de Seixas, Cristiane Prado Marin, Juan Paulo Robles Balestero, Higor Dalbon da Silva</i>	34
TREE-LIKE DECISION MODEL FOR CLASSIFICATION OF FUNCTIONALITY IN PATIENTS WHO HAVE HAD CEREBROVASCULAR ACCIDENT	
<i>Luciana Moura Mendes, Danyelle Nóbrega de Farias, Ingrid Davis da Silva Gadelha, Geraldo Eduardo Guedes de Brito, Kátia Suely Queiroz Silva Ribeiro, Ronei Marcos de Moraes</i>	35
SUSTAINABLE DESTINATION FOR THE URBAN TREE PRUNING WASTE	
<i>Ana Júlia Ferreira Rocha, Renata Leon Paula de Souza, André Luiz de Lima Reda, Gilberto Teixeira da Silva</i>	35
CALIBRATION OF TIPPING BUCKET RAINFALL GAUGES: A METODOLOGY FOR FIELD DATA ANALYSIS AND CORRECTION	
<i>Matheus Veiga Mansano, Ruben M. Crivelari, André Luiz de Lima Reda, Magda A. Salgueiro Duro</i>	35

Tuesday – July, 21

8:30 am – 4:30 pm
REGISTRATION

9:00 am – 10:30 am
SPECIAL TRACK II – PT1

Chair: **Prof. João Pedro Couto** – Professor of University of Minho (UMinho), Guimarães, Portugal

Co-Chair: **Luis Santos** – University of Minho (UMinho), Guimarães, Portugal

Title: **DEVELOPMENTS IN MANAGEMENT METHODS AND PROCESSES IN THE CONSTRUCTION AND ENERGY OPTIMIZATION OF BUILDINGS: FROM THE USE OF BIM TO THE IMPLEMENTATION OF LEAN**

TEAMCOACHING IMPORTANCE IN CONTINUOUS IMPROVEMENT PROCESSES

Luís P. Marques, João Pedro Couto.....36

THE IMPORTANCE OF INTEGRATED IMPLEMENTATION OF LEAN CONSTRUCTION AND BIM FOR IMPROVING THE SUSTAINABILITY OF CONSTRUCTION PROJECTS

Luís P. Marques, Luís M. Santos, João Pedro Couto.....36

USING BIM IN CONSTRUCTION PROJECTS MANAGEMENT

Francisco Reis da Silva, João Pedro Couto, Luís M. S. Pimenta, Pedro M. L. Salgado.....36

APPLICATION OF BIM IN INTEGRATED MANAGEMENT OF CONSTRUCTION PROJECTS OF SINGLE-FAMILY RESIDENTIAL BUILDING

António J. C. Marinho.....36

BIM TOOLS AND PROCEDURES FOR ENERGY EVALUATION AND OPTIMIZATION IN BUILDINGS

Luís M. Santos, João Pedro Couto.....37

USING RAPID PLANT ASSESSEMENT TO MEASURE THE LEAN STATUS IN CONSTRUCTION PROJETS

Luís P. Marques, João Pedro Couto.....37

BIM-FM FOR SOCIAL HOUSING MAINTENANCE

Ana Alves, Fernanda Rodrigues, Romeu Vicente, Aníbal Costa, Manuel Guedes.....37

10:30 am – 11:00 am
Coffee Break

11:00 am – 12:30 pm
TECHNICAL SESSIONS

Session PT2

Chairs

Diva Lea Batista da Silva
Herik Zednik

SOFT WATER IN HARD ROCK BEATS UP BOTH STICKING: IMPORTANT ROLE OF SUSTAINABILITY IN THE WORLD TODAY

Diva Lea Batista da Silva38

NANOTECHNOLOGIES' CONTRIBUTIONS FOR THE PRESERVATION OF NATURAL RESOURCES AND ENERGY GENERATION

Nasser Mahmoud Hasan, Bianca Dall Gallo Marion.....38

MAPPING OF NATURAL RESOURCES AND POTENTIAL FOR GREEN ECONOMY IN BRAZIL

Vadson Bastos do Carmo, Nasser Mahmoud Hasan38

LOW COST SYSTEM FOR WATER HEATING, USING POLYETHYLENE HOSE FOR APPLICATION IN KITCHEN UNITS OF DETENTION

José Aparecido Silva de Queiroz, Adriano de Souza Marques, João Francisco Escobedo.....38

IMPLEMENTATION OF TECHNOLOGICAL RESOURCES SUSTAINABLE TO PROMOTE PEOPLE WITH DISABILITIES ACCESS THE INFORMATION TECHNOLOGY

Felipe Aparecido Alexandre, Wenderson Nascimento Lopes, Alexandre C. Almeida, José Aparecido Silva de Queiroz.....39

ELECTROCHEMICAL SYNTHESIS AND CHARACTERIZATION OF DOPED POLYANILINE WITH COPPER AND COBALT FROM SPENT LITHIUM-ION BATTERY

Marcio Vieira Rodrigues.....39

MAJOR HEALTH HAZARDS ASSOCIATED WITH THE USE OF DIGITAL TECHNOLOGIES: SCHOOL ROLE FACING THAT CHALLENGE

Herik Zednik, Camino López, Liane M. R. Tarouco.....39

ACTION OF CHEMICAL LEASING IN PRODUCTION PROCESSES AIMING AT SUSTAINABILITY IN BRAZIL

Marcos José de Barros, Maria Célia de Oliveira, Manoel Gonçalves Filho40

CONSEQUENCES OF FUTSAL EARLY TRAINING FOR CHILDREN IN AGE GROUP FROM 06 TO 10 YEARS OLD: A CASE STUDY

Derival Pires dos Santos, Jacio L. da Silva Pereira, Rodrigo C. Borges40

PHYSICAL EDUCATION AND ITS RESULTS IN THE FIGHT AGAINST SEDENTARISM STATE IN FUNDAMENTAL SCHOOLS OF INHUMAS MUNICIPALITY - GO, BRAZIL

Derival Pires dos Santos, Jacio L. S. Pereira, Rodrigo C. Borges40

12:30 pm – 2:30 pm

LUNCH

2:30 pm – 4:00 pm

TECHNICAL SESSIONS

Session PT3

Chairs

Maria Aparecida Faustino Pires

Lúcia da Silva Vilarinho

EVALUATION OF OCCURRENCE OF PHARMACEUTICALS IN THE WATERS OF DAMS OF THE SÃO PAULO STATE, SP, BRAZIL

Helena Miho Shihomatsu, Elaine Arantes Jardim Martins, Marycel Elena Barboza Cotrim, Daniel Temponi Lebre, Maria Aparecida Faustino Pires40

CHARACTERIZATION ANTROPOCULTURAL LANDSCAPE IN CABEDELO (PARAÍBA - BRAZIL)

Lúcia da Silva Vilarinho, Antonio Joaquim da Silva, Fabrício Napoleão Andrade, Francisca Carla Silva de Oliveira, Jossivaldo de Carvalho Pacheco, Adriana Saraiva dos Reis, Sílvia Maria Santana Andrade Lima, Wilza Gomes Reis Lopes41

PIAUI QUALISUS-NETWORK: REORDERING AND REORGANIZATION OF STATE HEALTH SYSTEM TO STRENGTHENING OF HEALTH REGIONS

Lúcia da Silva Vilarinho, Cristiane Maria Ferraz Damasceno Moura Fé, Ailana Rodrigues Lira, Ana Maria Menezes Neiva Eulálio Amorim, Annatália Meneses de Amorim Gomes, Helena Paula Guerra dos Santos, Ioli da Silva Piauilino Ferreira41

IMPLEMENTATION OF HORIZONTAL CLOSED CONDOMINIUMS AND URBAN SUSTAINABILITY: A STUDY IN TERESINA CITY, PIAUI, BRAZIL

Wilza Gomes Reis Lopes, Karenina Cardoso Matos, Raniere Bezerra de Araújo, Cassio Nascimento Duarte, Rochelle Hermenegilda Nunes Nogueira, Guilhermina Castro Silva, Nícia Bezerra Leite.....41

INTEGRATED COASTAL MANAGEMENT IN HYDROGRAPHIC BASIN IN COASTAL ZONE

Renata Cristiane Fusverk da Silva, Eduardo Juan Soriano Sierra42

MONITORING CHEMICAL PARAMETERS OF WATER QUALITY: A STUDY IN

PARANAPANEMA III AND IV RIVER BASINS

Oswaldo Tarelho Junior, Cássia Maria Bonifácio, Célia Regina Granhen Tavares42

THE CITY AND THE DIALOGUE WITH SUSTAINABILITY

Leticia Barroso, Vera Lucia F. Rezende42

DEVELOPMENT OF A LOW COST ENZYMATIC BIOSENSOR BASED ON MAGNETIC NANOPARTICLE/CHITOSAN TO DETERMINATION OF PHENOLS IN ENVIRONMENTAL MATRICES

Juliana C. Batista, Augusto Etchegaray Jr, Elizabeth F. de Souza, Renata Kelly Mendes42

PRODUCTS OF ECONOMIC INTEREST OF THE ANFRÍSIO RIOZINHO RESEX: VERTICALIZATION OF PRODUCTION IN THE AMAZON

Manoel Júlio Albuquerque Filho, Simone de Fátima Pinheiro Pereira, Johny da Silva Oliveira, Geiso Rafael Oliveira, Cleber Silva e Silva, Augusto Fernando Souza de Oliveira, Davis Castro dos Santos43

ORGANIC WASTE RECYCLING: COMPOSTING IN FOOD PRODUCTION IN MEDICILÂNDIA SCHOOLS

Marcílio Garcia Ferreira, Claudiane dos Santos Ferreira, Simone de Fátima Pinheiro Pereira, Cleber Silva e Silva, Davis Castro dos Santos, Augusto Fernando Souza de Oliveira, Johny da Silva Oliveira, Geiso Rafael Oliveira43

4:00 pm – 4:30 pm

Coffee Break

4:30 pm – 5:30 pm

TECHNICAL SESSIONS

Session PT4

Chairs

Tâmira T. M. Rodrigues
Antonio da Costa Cardoso Neto

EDUCATION AS A POSSIBILITY OF SOCIAL TRANSFORMATION

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso43

BIOPSYCHOSOCIAL EDUCATION DEVELOPMENT AND QUALITY OF LIFE AMONG THE ELDERLY 65 AND 75 YEARS OF AGE IN SANTA INES CITY, MARANHÃO STATE, BRAZIL

Antonio da Costa Cardoso Neto44

FACTORS THAT LEAD TO EARLY WEANING WITH MOTHERS OF BASIC UNIT OF PALM TREES HEALTH IN SANTA INES MARANHÃO

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira44

USE OF ENVIRONMENTAL EDUCATION IN CONTROL OF PESTICIDES IN PLANTATION IN THE ALTAMIRA AND MEDICILÂNDIA CITIES - BRAZILIAN AMAZON

Irineu Jorger de Souza, Edna Maria Barradas da Silva, Simone de Fátima Pinheiro Pereira, Geiso Rafael Oliveira, Cleber Silva e Silva, Davis Castro dos Santos, Augusto Fernando Souza de Oliveira, Johny da Silva Oliveira44

INVESTIGATION OF THE PYROLYSIS PRODUCTS OF MICROALGAE CHLORELLA VULGARIS USING PY-GC/MS

Tâmira T. M. Rodrigues, Marcelo M. Seckler45

HELP DESK ASSESSMENT BY AHP

Ricardo Rodrigues Dias de Lima, Rogério Moraes Carneiro, Murilo Borges Silva, Victor F. A. Barros45

PHYSICAL-HYDRIC BEHAVIOR OF RED NITOSOL: SUBSIDIES FOR WATER RESOURCES MANAGEMENT IN THE PIRAPÓ-PARANÁ-BRASIL RIVER BASIN

André Jesus Perçato, Francieli Sant'ana Marcatto, Hélio Silveira45

ASPECTS OF CHANGES IN CHEMICAL REACTIONS THAT OCCUR IN THE ATMOSPHERE AND INFLUENCE IN THE WORKS OF HISTORICAL HERITAGE OF DECAY

Luiz Pinheiro da Guia, Ana Lúcia Torres Serôa da Motta46

USE OF RAIN WATER FOR NON POTABLE PURPOSES IN POPULAR SINGLE-FAMILY RESIDENCE: A PROPOSAL FOR THE METROPOLITAN REGION OF UMUARAMA – NORTHWEST OF PARANÁ

Janaina Conversani Botari, Alexandre Botari, Altair Bertonha46

NONLINEAR REGRESSION ANALYSIS APPLIED TO VARIABLES OF ENVIRONMENTAL COMFORT AS A TOOL FOR THE DESIGN OF SUSTAINABLE ALTERNATIVES IN URBAN PUBLIC OPEN SPACES: THE CASE OF SQUARES OF UMUARAMA-PR

<i>Janaina Conversani Botari, Alexandre Botari, Giuliani do Prado</i>	<i>46</i>
ANALYSIS OF THE EFFICIENCY OF DISINFECTION OF EFFLUENT FILTRATION AND FILTRATION DITCHES VIA UV RADIATION	
<i>Rafael Oliveira Agnholeto, Alexandre Botari, Diego Leonardo Salvador, Tânia Mara Rizzat Salvador.....</i>	<i>46</i>

**8:00 pm – 11:00 pm
CONGRESS DINNER**

Congress dinner is a pleasant way to gather and to close a successful conference accompanied by the colleagues in a beautiful and inspiring environment. The tickets will be available at the reception desk.

Wednesday – July, 22

8:30 am – 10:30 am
REGISTRATION

9:00 am – 10:30 pm
TECHNICAL SESSIONS

Session PW1

Chairs

Andrea Lopes Ramires Kairala
Adna Sandriele Oliveira de Lima Medeiros

NEONATAL RESUSCITATION PROGRAM OF THE BRAZILIAN SOCIETY OF PEDIATRICS: PROFESSIONAL PROFILE OF STUDENTS AND COURSE EVALUATION THEORETICAL PRACTICAL NEONATAL RESUSCITATION - BRASILIA – DF/BRAZIL

Andrea Lopes Ramires Kairala, João Paulo Barbosa de Jesus, Luana Nogueira Lima,
Caio dos Santos Fogaça, Camila Seixas, Adna Sandriele Oliveira de Lima Medeiros,
Caio Moura, Caio Medeiros de Oliveira, Karinne Cardoso Muniz, Marcia Silva de
Oliveira47

YOUNG ACADEMICS IN MEDICINE: A FIRST CONTACT WITH THE PEDIATRICS

Sabrinny Pedroza Martins, João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio
dos Santos Fogaça, Camila Carlos Seixas, Natalia Ramires Kairala, Adna Sandriele
Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira,
Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira47

HEALTH MANAGEMENT: POSSIBILITIES AND LIMITS OF A FAMILY HEALTH UNIT OF THE INTERIOR AND ONE OF THE CAPITAL OF RN

Taisy Rincon Siqueira, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de
Moura, Caio Medeiros de Oliveira, José Kairala Filho, Andrea Lopes Ramires Kairala,
Marcia Silva de Oliveira.....48

STUDENTS OF MEDICINE AND THEIR INITIAL PERCEPTION ABOUT THE SINGLE HEALTH SYSTEM

João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio dos Santos Fogaça, Camila
Carlos Seixas, Natalia Ramires Kairala, Adna Sandriele Oliveira de Lima Medeiros,
Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala,
Marcia Silva de Oliveira.....48

STRESS IN THE EDUCATIONAL AREAS: CORRELATION BETWEEN THE SINTOMATOLOGICAL DIMENSIONS OF BURNOUT SYNDROME AND DEPRESSION

Marcia Silva de Oliveira.....48

IATROMETODOLOGY AND ETHNOGRAPHY USEFUL TOOLS FOR RESEARCH AND MEDICAL PRACTICE

Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala, Antonio da Costa Cardoso
Neto, Vilma Dias da Costa, Pâmera Santos Marques.....48

THE BULLYING AND MORAL INJURY IN PROFESSIONAL ENVIRONMENT

Pâmera Santos Marques, Marcia Silva de Oliveira, Vilma Dias da Costa, Antonio da
Costa Cardoso Neto.....49

ASPERGER'S SYNDROME: THE IMPORTANCE OF EARLY STIMULATION

Vilma Dias da Costa, Marcia Silva de Oliveira, Pâmera Santos Marques, Antonio da
Costa Cardoso Neto.....49

10:30 am – 11:00 am
Coffee Break

**11:00 am – 12:30 pm
TECHNICAL SESSIONS**

Session PW2

Chairs

Andrea Lopes Ramires Kairala
Sabrinny Predoza Martins

DIVERSIFIED SCENARIOS: AN OPPORTUNITY FOR LEARNING AND GROWTH FOR THE STUDENT OF MEDICINE

Sabrinny Pedroza Martins, Gustavo Gomes Laurindo, Adna Sandriele Oliveira de Lima Medeiros, Camila Carlos Seixas, Caio Dos Santos Fogaça, Luana Nogueira Lima, João Paulo Barbosa de Jesus, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira.....49

EVALUATION OF PERFORMANCE AND THE IMPACT OF ERRORS IN PRACTICAL ACTIVITIES OF THE RESIDENTS OF THE FEDERAL DISTRICT IN THE COURSE THEORETICAL PRACTICAL NEONATAL RESUSCITATION

Andrea Lopes Ramires Kairala, João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio Moura, Caio dos Santos Fogaça, Camila Seixas, Adna Sandriele Oliveira de Lima Medeiros, Caio Medeiros de Oliveira, Marcia Silva de Oliveira, Karinne Cardoso Muniz50

BREASTFEEDING BY THE OPTICAL PRIMIPAROUS MOTHER: A PERSPECTIVE PROMOTION AND SUPPORT COMPREHENSIVE

Taisy Rincon Siqueira, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira50

ACADEMICS IN MEDICINE X ADOLESCENTS: A TWO-WAY STREET IN THE TRANSMISSION OF KNOWLEDGE

João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio dos Santos Fogaça, Camila Carlos Seixas, Natalia Ramires Kairala, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira.....50

ANESTHETIC THERAPEUTIC STRATEGY FRONT OF POST-DURAL PUNCTURE HEADACHE IN PUERPERAL OF A PUBLIC HOSPITAL

Luciano Santos Sampaio, Ataul Moura Guimarães, Dennys Augusto de Novais Monteiro, Fabio Cruz de Souza, Fernando Henrique Costa Lemos, João Paulo de Oliveira Lima, Glayson Carlos Miranda Verner, Felipe Monteiro Diniz, Marcia Silva de Oliveira51

ACUTE APPENDICITIS AND RIGHT URETEROLITHIASIS, A CONCOMITANT AND MINIMALLY INVASIVE SURGICAL TREATMENT

Bruno Vilalva Mestrinho, Berthran Severo, Dennys Augusto de Novais Monteiro, Luciano Santos Sampaio, Ataul Moura Guimarães, Fabio Sousa Cruz, Fernando Henrique Costa Lemos, Marcia Silva de Oliveira51

EXPLOSION IN A CHILD GLAN'S BY GUNSHOT: A REPORT OF SURGICAL CASE

Dennys Augusto de Novais Monteiro, Ataul Moura Guimarães, Bruna Viana Dias, Fabio Cruz de Souza, Fernando Henrique Costa Lemos, Guilherme Gonçalves Silva Pinto, Lídia Tocchio Melo, João Paulo de Oliveira Lima, Luciano Santos Sampaio, Marcia Silva de Oliveira, Bruno Vilalva Mestrinho51

DIVERSITY OF PATHOGENIC MICRO-ORGANISMS IN COLLECTIVE TRANSPORT AND HANDRAILS OF ESCALATORS IN SHOPPING MALLS OF FEDERAL DISTRICT/DF, BRAZIL

Jefferson Aber Alves Araújo, Juliana Paiva Lins, Marcia Silva de Oliveira, Céfora Bezerra Souza, Brunna Christofori Stefani52

THE ROUTINE BIOMEDICAL PERFUSION AT THE SURGICAL CENTER

Jefferson Aber Alves Araújo, Céfora Bezerra Souza, Juliana Paiva Lins, Marcia Silva de Oliveira, Brunna Christofori Stefani.....52

**12:30 pm – 2:30 pm
LUNCH**

**2:30 pm – 4:00 pm
TECHNICAL SESSIONS**

Session PW3

Chairs

Adna Sandriele Oliveira de Lima Medeiros

Mariana Queiroz Souza Pereira

THE VISION OF THE STUDENT OF MEDICINE IN THE FIRST PERIOD BEFORE THE HOME VISIT

Mariana Queiroz Souza Pereira, Caroline Neiva Damasceno, Flávio Eduardo Ramos Azevedo, João Victor Barros Feitosa, Rafaella Silveira Camargo, Suellenn Kecya Couto Tenório, Wanessa Fernandes Veloso, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira52

THE MEDICINE AND THE RELIGIOUS MANIFESTATIONS: A RELATIONSHIP THROUGH HISTORY

Eric Lima Mendonça do Nascimento, Gabriel Alves Barros Rocha, Taisy Rincon Siqueira, Wilson Martins Ribeiro, Adna Sandriele Oliveira de Lima Medeiros, Paulo Tubino, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira.....53

THE INFLUENCE OF SOCIOECONOMIC PATTERNS OF PRIMIPAROUS MOTHERS IN BREASTFEEDING SUCCESS

Eric Lima Mendonça do Nascimento, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira.....53

THE INTERNATIONAL AGREEMENTS AND THE RIGHT TO SOCIAL SECURITY

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala.....53

THE GAME AND ITS PURPOSE: CONTENT OF PHYSICAL EDUCATION OR METHODOLOGICAL RESOURCE EDUCATION

Elineide dos Santos de Oliveira, Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira.....53

THE HEALTH AS A FUNDAMENTAL RIGHT IN THE STATUTE OF THE ELDERLY

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala.....54

RELEVANCE OF EDUCATION AND KNOWLEDGE OF BIOETHICS IN HEALTH SCIENCES

Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala, Antonio da Costa Cardoso Neto, Vilma Dias da Costa, Pâmara Santos Marques.....54

STUDY OF IRON DEFICIENCY ANEMIA AND BLOOD TYPING IN CHILDREN UP TO FIVE YEARS OF AGE, ENROLLED IN A PUBLIC KINDERGARTEN IN FEDERAL DISTRICT/BRAZIL

Brunna Christofori Stefani, Juliana Paiva Lins, Marcia Silva de Oliveira, Jefferson Aber Alves Araújo, Céfora Bezerra Souza54

ECOTOXICOLOGICAL TESTS WITH THE USE OF LICHENS AS BIOINDICATORS OF AIR IN THE MONUMENTAL AXIS OF BRASILIA

Amanda Silva Rocha, Juliana Paiva Lins, Dênis Xavier da Silva, Pollyana Lorrany Ribeiro dos Santos, Welton de Assunção e Silva Júnior, Marcia Silva de Oliveira, Darlles Bruno de Sousa Pereira54

4:00 pm – 4:30 pm

Coffee Break

4:30 pm – 6:00 pm

CLOSING SESSION

Chair: **Prof. Claudio da Rocha Brito** – General Chair of SHEWC'2015

Prof. Melany M. Ciampi – Technical Program Chair of SHEWC'2015

Prof. Fernando de Almeida Santos – Local Chair of SHEWC'2015

Prof. Carlos Afonso Teixeira – Vice Local Chair of SHEWC'2015

Keeping Planet “Water Earth” Safe and Sound: a challenge to Science and Technology

ABSTRACTS

July 19 - 22, 2015
Porto, Portugal

Edited by
Claudio da Rocha Brito
Melany M. Ciampi

SHERO
Safety, Health and Environment
Research Organization

COPEC
Science and Education
Research Council

WORKSHOP

HUMAN ECOLOGY IN 21ST CENTURY: ELDER POPULATION GROWTH AND ITS IMPACTS IN GLOBAL ECONOMY

Claudio da Rocha Brito, Melany M. Ciampi, Victor F. A. Barros

Population ageing is driven by declines in fertility and improvements in health and longevity. Globally, life expectancy increased by two decades since 1950 - from 48 years in 1950 to 1955 to 68 years in 2005 to 2010, and is expected to rise to 75 years by 2050. The life expectancy of older people has increased particularly rapidly; a person who reaches age 60 has more years of life left than in the past. On top of it the world's total fertility rate fell from 5 children per woman in 1950 to roughly 2.5 today, and is projected to drop to about 2 by 2050. This paper aims to reflect about human beings longevity and its impact in our daily lives; what can be done to soften the issues that impact society in terms of healthcare, social assistance, family relations and world economy.

PLENARY SESSION

KEEPING PLANET "WATER EARTH" SAFE AND SOUND: A CHALLENGE TO SCIENCE AND TECHNOLOGY

Claudio da Rocha Brito, Melany M. Ciampi, Victor F. A. Barros

SHEWC - Safety, Health and Environment World Congress is a congress that has been happening for 15 years and it is a congress that has been counting with many organizations participation besides authors and researchers from many parts of the world. It shows that it is an idea that encounters the expectations of scientific and research environment. This edition is a joint venture of SHERO and the Portuguese Order of Engineers. These 2 organizations have been working together putting up a top scientific congress with quality and impact in academic and professional communities. SHEWC - Safety, Health and Environment World Congress'2015 has the collaboration of many scientists in the several fields of expertise, who have embraced the ideal of fostering scientific research in these areas.

SPECIAL TRACK I - PM2

MODELLING OF CO₂ CONCENTRATION IN A CLASSROOM WITH NATURAL VENTILATION IN A PORTUGUESE UNIVERSITY

Vânia Seixas, Irene Oliveira, Margarida Correia Marques

The Indoor Air Quality (IAQ) has been increasingly debated due to the increased amount of time people spend indoors. Improving IAQ in University buildings involves understanding the origin of the contaminants, their temporal evolution and relating them to different human activities, space characteristics, type of ventilation and insulation. The purpose of this study was to develop a mathematical model that simulates the evolution of CO₂ in a classroom with natural ventilation by opening the door / windows. The measurements were performed in classroom at the University of Trás-os-Montes and Alto Douro, Portugal, during the school period. For each time period the situation was evaluated taking into account several models of the modeling of CO₂ concentration. The created model reflects the measured values of CO₂ becoming a useful tool for IAQ control, providing guidance for frequency of opening / closing windows and door, and improving the welfare of the classroom's users.

EDUCATION AND ENVIRONMENTAL AWARENESS OF THE RESPONSIBLE FOR THE MAINTENANCE OF THE ARBORETUM OF RIO DE JANEIRO BOTANIC GARDEN - BRAZIL

Jussara Izabel Corrêa Cabral, Margarida Correia Marques

Rio de Janeiro Botanic Garden (RJBG) is an historical reference, a reserve area of the Biosphere, according the UNESCO and a public park. Due to this Botanical Garden significance, namely the importance of a specific area named Arboreto, whose collection of vegetal live species, is used for research in botany, there are clear care related to its physical aspect. This paper is meant to be a useful tool to all human resources selected to do RJBG maintenance work, caretakers. It intends to, guide environmental good practices, crucial tasks for this Institution. After pinpointing this caretakers' best personal features, it was possible to create several lectures and a notebook with all the environmental good practices, always the focus one the activities carried out at the Arboreto. Such actions aim to teach and clarify important values of the workplace, of the activities and environmental responsibilities, ending with certification from the RJBG coordination.

AGRICULTURE, AGRO-INDUSTRY AND RISK ANALYSIS

Ana Margarida Mascarenhas, Ana Paula Silva, Margarida Correia Marques

The fast development of technology and consequently the creation of new types of industries along with inadequate planning exacerbates the human and material damage, which means that there is an increased vulnerability with the population, equipment, property and economic activities. In order to decrease this degree of vulnerability and be a management and appropriate use of the land, it becomes crucial the risk identification as well as a risk analysis. The aim of this paper is to make a diagnosis of the territory under study, by focusing on agriculture, as well as select and characterize the type of agro-industry to install and analyze their risks, thereby obtaining an agro-industry adapted to the territory. The suggested agro-industry would have to be integrated in addition of being environmentally sustainable, it should include a part of training, as part of research to support production.

ENVIRONMENTAL RISKS AND METHODOLOGY FOR A LOCATION OF A METALWORKING

Cristiana Fernandes Rodrigues, Margarida Correia Marques

The knowledge and risk analysis has a positive influence on the correct use of the territory. The main objectives of this study are characterize the area under study in order to identify their main vulnerabilities and characterize de metalworking industry, including technological risks. The high fire risk, present in most municipalities and the existence of geological fault represent the major vulnerabilities identified in the territory. Regarding the metalworking industry, the main sources of risk identified on the basis of the production process were: furnaces, storage, handling and use of oils and acids and formation of metallic powder. The methodology created provides that for the most suitable location of a metalworking should be taken into account in the one hand the vulnerabilities of the territory and other hand technological risks associated with the industrial facility, which subsequently allow to develop a correct analysis of environmental risk.

ENVIRONMENTAL RISKS FACTORS IN ENVIRONMENTAL IMPACT STUDIES OF PROPOSAL QUARRY INDUSTRY PROJECTS

Cristina Filipa Félix de Sá, Margarida Correia Marques

Currently, risks emerge as a progressive dynamic area inherent to a growing awareness about their presence and effects on behalf of society. Simultaneously, there is a gradual need to address both risks natural factors and factors related with technique and the overall organization, so that a sustainable territorial management can be pursued. Based upon the

Environmental Impact Assessment (EIA), it has been widely acknowledged that within the current Portuguese panorama, the EIA encompasses an importance and complexity in its process as the non-consideration of environmental risks in its procedures. This is the assumption behind the present work, a research that also emerged from the need to develop cooperating elements for the overall improvement of the EIA process, with a particular highlight towards the elaboration of Environmental Impact Studies (EIS) with regards to their environmental risks approach, in EIS of quarry industry projects.

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN® CERTIFICATION SYSTEM APPLIED TO A BUILDING IN BELO HORIZONTE, BRAZIL

Janeth Vieira da Silva, Anabela Gonçalves Paiva, Caroline Dominguez, Margarida Correia Marques

A building requires beautiful aesthetic, must be constructed in accordance with local legislation and be compatible with the function for which it was designed. The aim of this paper is to present sustainable assessment methods applied to Brazilian buildings and study the applicability and benefits of the Leadership in Energy and Environmental Design (LEED®) certification through a case study, verifying the compliance with predefined certification credits in the initial phase of the construction. To achieve the proposed goal, technical visits were made to the construction site in order to observe the construction process. Results show that from the start of the project, the company's team committed itself to minimize the impacts generated during the construction process including their participation in an environmental education plan in order to disseminate construction techniques in accordance with the LEED® certification.

TECHNICAL SESSION – EM3

DRONE-BASED WIRELESS NETWORK SENSORS FOR FOREST FIRE DETECTION

C. M. Barrett, R. Landowski, J. Sheng, Orlando R. Baiocchi

The project happening at the Institute of Technology, University of Washington, Tacoma (SENSE Group) in particular has significance to the scenario when the path of a forest fire needs to be predicted. Forest fire prediction and control has immense environmental, economic and public safety relevance. This project has attracted attention and participation from researchers from different universities in the United States, Brazil and Spain. This paper describes the current work being conducted by the SENSE group including the project challenges, the proposed solutions and its potential applications. In particular, it describes the assembling of a flying drone to collect data on wind speed and direction so that data relevant to microclimates can be gathered and the behavior of forest fires can be better predicted and controlled. Current results and the expected future work are also presented.

IMPROVING THE SUSTAINABILITY OF URBAN AREAS THROUGH TRANSPORT SYSTEM MANAGEMENT

Irina Makarova, Gennady Mavrin, Eduard Belyaev, Vadim Mavrin, Ilmar Suleimanov

The urbanized mankind is faced with vulnerability of urban systems, migration and concentration of population, low quality of habitat, loss of fertile land, and necessity of waste disposal. In large cities, a significant contribution to atmospheric pollution with sulphur dioxide, nitrogen and carbon oxides, and industrial dust comes from the motor transport. The motor traffic growth inevitably affects the human health by causing road and transport traumatism, respiratory diseases and diseases caused by physical inactivity. The proposed solution is based on optimization of a city transport system parameters. This was achieved by via simulation

modeling taking into account a large number of parameters, both within and outside the system, many of the latter being stochastic. The recommendations include rearranging of the public transport routes and changing over to vehicles running on gas motor fuel.

TECHNICAL SESSION – PM3

TOURISM AS A VECTOR FOR ENVIRONMENTAL, SOCIAL, CULTURAL AND ECONOMIC RISEN: VISITING SCRIPT OF TO THE PROJECT “WORKSHOP ART IN THE QUOTAS”, CUBATÃO, SÃO PAULO, BRAZIL

Aristides Faria Lopes dos Santos, Renato Marchesini, Renata Antunes da Cruz

The experiment reported in this paper is a visiting script to a social group of São Paulo's coast, southeast region of Brazil. The script in question is a product of “Caíçara Expedições” in partnership with the “Ateliê Arte nas Cotas” project held in Cubatão, city located in the metropolitan area of “Baixada Santista”. This project is part of the “Programa de Recuperação Socioambiental da Serra do Mar”, which comes from a partnership between the Interamerican Development Bank (BID) and the Government of the State of São Paulo government. Students learn techniques of stencil, which consists of applying paint with rollers or sprays to fill a role with cast drawing. This technique and mosaics are applied on the walls of houses at “Cota 200” community. In addition, are made shirts, calendars and cushions, which are sold and whose revenues are reverted to the project.

FLUORESCENCE BASED OPTICAL FIBER SENSOR FOR DISSOLVED OXYGEN DETECTION IN WATER MEDIA

Fátima C. de Oliveira, Mauro Sérgio Braga, Guilherme M. Gonçalves, Walter J. Salcedo

We proposed the fluorescence based optical fiber sensor for dissolved oxygen (DO) in water media using the integrated circuit photodiodes array as a detector and diode LED as an excitation source. The sensor was fabricated using a multimode optical fiber which at its end exposed tip was deposited a PVC thin film doped with octaethylporphyring of platinum (PtOEP) molecules as a sensitive part of device. The sensor showed a good linear response in the region between 4 to 20 mg/L of DO in water media. The response time to sudden change from 0% to 20% of DO showed to be so fast even though the recovery process was slowly due to slow diffusion process of oxygen from the active film into the water media. The integrated fluorescence based optical fiber sensor together with integrated photodiode array and diode LED could be applied as a depth gauge sensor for in-situ DO detection in river, lake and fountain water.

TECHNICAL ASPECTS OF THE PRODUCTION PROCESS OF ALOE VERA GEL BIODIESEL: PRE-TREATMENT AND TRASESTERIFICATION

Marcelo Silva, André E. Machado, Barbara C. A. da Rocha, Ana Carolina R. de Castro, Thaiane de Castro Mello, Lorrán Santana, Rayanne Murras, Bruno Carvalho

The aspiration of the century is to reconcile the economic, energy and social interests with the need to preserve natural resources for future generations, briefly apply the ideal of sustainability. Seeking to address the lack of clean and renewable energy, is an alternative biofuel production on a larger scale. According to this claim, a search began for new oil, biodiesels derived base for vegetable matter and able to fit the transesterification process, which is simple and responsible for reducing the kinematic viscosity method. A viable option was from leaf Aloe Vera, a viscous gel and colorless, it can develop a good adaptation to production processes by pre-treatment.

A NEW GENERALIZATION FOR NAIVE BAYES STYLE FUZZY PROBABILISTIC CLASSIFIER

Ronei Marcos de Moraes

Some kinds of naive Bayes style networks have been proposed, such as the multinomial, possibilistic and fuzzy Gaussian naive Bayes. Recently, a general formulation for a naive Bayes style classifier using probability for fuzzy events has been proposed. That formulation was able to classify real data modeled by different statistical distributions, which are estimated by real parameters. However, fuzzy probabilistic network using fuzzy parameters was not proposed yet. In this paper, we proposed a formulation for this kind of naive Bayes supervised classifier. This approach can be useful for classification purposes, when random variables can have different statistical distributions, which can be estimated using both fuzzy and real parameters. A brief discussion about applications for data classification from public health is provided too.

SUSTAINABILITY IN CONSTRUCTION PROJECTS: A MULTICRITERIA MATRIX BASED ON RISKS

Simone Zappe Fernandes, Cláudia do Rosário Vaz Morgado

The construction industry has a fundamental role for the Brazilian economy and is also one of the most complex, with each of the segments with the highest number of occupational accidents. The increased demand for construction projects increases the risk exposure in its execution. The need to improve project performance and increasing contractual obligations require the implementation of a sustainable management system that results in higher productivity with lower losses. The risk is present in all companies and can never be totally eliminated, but can be managed effectively to mitigate the impacts and improve corporate strategy that incorporates productivity, safety and sustainability. The objective of this work is to propose a method of classification effective multicriteria risk and high applicability, which can be tailored to the specific construction, covering health and safety aspects, environmental and social responsibility to be used as a tool decision making of the construction project manager.

COST REDUCTION THROUGH ENVIRONMENTAL EDUCATION: A CASE STUDY IN AN AUTOMOTIVE COMPANY

Raquel de Paula Soares

This study aimed to evaluate the environmental education of the employees of an automotive company and discuss strategies for cost reduction in the company through environmental education. The data on education were obtained by the application of a questionnaire to the company's workers. The main expenses related to environmental management of the company were identified, and detailed data were collected through documental research. Among other statistics, the analysis showed that 39% of the employees never participated in environmental training, and only 17% knew about waste destination, indicating a lack of environmental awareness and knowledge. The amount of expenses calculated was R\$ 32,755.08 per month. Opportunities for improvement and savings through environmental education in the company were assessed, concluding the company can save over R\$14,056.07 monthly and reduce its impacts. The strategies proposed could be an example to other companies and encourage investment in environmental education

PERFORMANCE OF BRAZILIAN AND GERMAN WASTE EXCHANGE PLATFORMS

Raquel de Paula Soares, Marielle Feilstrecker, Klaus Martin Fischer

This study aimed to evaluate the environmental education of the employees of an automotive company and discuss strategies for cost reduction in the company through environmental education. The data on education were obtained by the application of a questionnaire to the

company's workers. The main expenses related to environmental management of the company were identified, and detailed data were collected through documental research. Among other statistics, the analysis showed that 39% of the employees never participated in environmental training, and only 17% knew about waste destination, indicating a lack of environmental awareness and knowledge. The amount of expenses calculated was R\$ 32,755.08 per month. Opportunities for improvement and savings through environmental education in the company were assessed, concluding the company can save over R\$14,056.07 monthly and reduce its impacts. The strategies proposed could be an example to other companies and encourage investment in environmental education

SENSOR DEVICE BASED IN 1-(2-PYRIDYLAZO)-2-NAPHTHOL (PAN) MOLECULES EMBEDDED IN PVC THIN FILM FOR HEAVY METAL RECOGNITION AND CLASSIFICATION IN WATER MEDIA

Edmilson Roberto Braga, Mauro Sérgio Braga, Walter Borysow, Osmar F. Gomes, Walter J. Salcedo

The present work reports a methodology of classification and recognition of metal ions of Zinc, Copper and Nickel respectively. For this purpose we used a solution of PAN in THF deposited on a polyester substrate as a sensitive system leveraging the photochrome property of this molecule when complexed with metal ions. The proposed classification method using principal component analysis of Fourier coefficients corresponding to the absorption curves fitting proved to be efficient. The read of the color shift of PAN in THF deposited on a polyester substrate, after the addition of different concentrations of metal ions, was obtained with the RGB sensor integrated into a mobile system smartphone, the results of RGB levels reading by this process showed the possibility of using this system for in situ analysis of the concentration of metal ions in rivers.

INTEGRATED MULTI-SPECTRAL OPTOELECTRONIC SENSOR FOR O₂ AND NO₂ GASES

Mauro Sérgio Braga, Daniela S. Santos, Guilherme M. Gonçalves, Osmar F. Gomes, Walter J. Salcedo

Oxygen (O₂) and nitrogen dioxide (NO₂) sensors are of great importance to monitor the quality of air in town centers and in the environment. Conventionally sensors applied for this purpose are based on photoluminescent emission of dyeing molecules which require photoluminescent equipment. In this context, the present work reports the fabrication and response analysis of sensors based on photoluminescent emission of platinum octaethylporphyrin (PtOEP) molecules that were directly deposited on the active region of an optoelectronic detector. The sensors fabricated in this way showed excellent response to O₂ and NO₂ allowing great possibilities of application for in situ monitoring systems.

TECHNICAL SESSION – PM4

ACRE RIVER, THE RIVER OF HORSESHOES, A RIVER THAT SNAKES IN THE LIMIT BETWEEN TWO NATIONS

Pedro José da Silva

The Acre River Valley is fairly populated for Amazonian standards. In Acre Assis Brazil, the river that marks the border city with Inapari (Peru) and Bolpebra (Bolivia). Crossing the Rio Branco, the river divides it into two districts. The accelerated erosion on either bank is close to make part of Brasileia miss the land connection with the rest of the city, making it an island surrounded by Bolivia. This study aims to study the processes responsible for the formation of meanders and

the erosion occurring in Rio Acre. The methodology is based on a descriptive survey or study, as is to observe and record events that occur in a given space of the real world, identified as Acre River. Stand out as results the identification of the main factors responsible for not only the formation of meanders, but also by erosion.

PROPOSAL FOR LIQUID WASTEWATER TREATMENT FROM ELECTROPLATING INDUSTRY

Carolina Cione Coppi, Katia Tannous

The objective of this research is to propose a treatment for the wastewater of an electroplating industry located on São Paulo state/Brazil, containing high levels of heavy metals, through the chemical reduction and precipitation. A statistical planning was applied relating pH (2-8), temperature (20-40°C) and reducing agents (sodium metabisulphite and sodium thiosulfate) to minimize the heavy metal contents, such as, manganese, chromium, iron and nickel, evaluating the effluent before and after treatment. The results showed the best operating conditions in chemical processes, pH 2, T 40°C and sodium thiosulfate, which was applied in the treatment for other metals such as copper, zinc, and mercury obtaining excellent efficiency (>80%) compared with the current law.

EVALUATION OF RENEWABLE ENERGY EFFICIENCY OF ALTERNATIVE BIOMASSES FOR ELECTRICITY GENERATION

Katia Tannous, Rodrigo Allegratti Artioli, Vadson Bastos do Carmo

This work evaluates the renewable energy efficiency of alternative sources of biomasses as raw materials for a cogeneration system (steam and electricity) coupled with bioethanol production process from sugarcane during off-season. Agro-industrial residues, municipal waste and, energy plantation and forest were analyzed as biomasses. The technology chosen was the direct combustion coupled with traditional steam turbine (Rankine cycle) for obtaining electricity production. Relative renewable energy efficiency for each biomass was determined through the energy and emergy indices (transformity, renewability and emergy yield ratio) applying the Charnes, Cooper and Rhodes model and data envelopment analysis. The elephant grass planting and eucalyptus forest presented the greatest rates on energetic efficiency, which are recommended to replace sugarcane bagasse as raw material.

RIVERS, BANDITS, OUT OF LAWS

Pedro José da Silva

As cities grew, disorderly, the different river beds were occupied by streets, avenues, and even highways. This placement is responsible for engineering interventions identified as river water works counterproductive in most cases. This study aims to identify the main laws governing the evolution of rivers. The methodology is based on a descriptive study or survey as it is to observe and record events that occur in certain areas of the real world, identified as the River South Paraíba and Stream of the Boys, and in particular the stretch that runs through the city of Sao Caetano do Sul, near the campus of the University of Technology Maua, which then features a Case Study. Stand out as the results set of laws governing the evolution of watercourses, which are no longer maintained and / or answered.

APPLICATION OF WIRELESS SENSOR NETWORK IN MONITORING ENVIRONMENTAL VARIABLES: TEMPERATURE AND RELATIVE HUMIDITY

Paulo Henrique Cruz Pereira, Marcelo Sampaio Alencar, Orlando R. Baiocchi

A Wireless Sensor Network (WSN) uses small devices that are capable of sensing and data processing. They are distributed over a given area to monitor certain events. One of the most promising areas of application of WSN is environment monitoring. The deployment of a WSN in a farm or plantation to monitor variables related to agriculture (temperature, pressure, soil moisture, solar radiation level) or the use of this technology to monitor fauna, flora and climatic variables, is pointed out in several scientific studies and practical applications as a promising technology. This paper presents the results obtained by simulation of a WSN used in environmental applications, with emphasis on wireless transmission (IEEE 802.15.4 protocol), also known as ZigBee, and the processing of the collected data. The main focus of the project is the implementation of WSN for environmental applications, monitoring of temperature and relative humidity of the ambient, and data processing.

THE USE OF ORNAMENTAL ROCKS RESIDUES IN HYDRAULIC TILE INSERTS

Maria Antonina Magalhães Coelho, Joyce Araújo Máximo da Silva, Nuria Fernandez Castro

The state of Espírito Santo is a leading producer of ornamental stones of Brazil. In the milling process are generated large amounts of residue, which is sent to environmental landfills. The construction may use such waste adding them in precast concrete artifacts. Seeking a sustainable solution, hydraulic tile inserts were made using ornamental Stone residues replacing the fine aggregate. The hydraulic tile inserts samples were made with dimensions of (10x10) cm and a thickness of 6 ± 0.5 mm to be used as decorative accessories coating floors and walls. The objective of this study is to analyze the properties of hydraulic tile inserts comparing them to ceramic flooring tiles. The analyzed properties were water absorption, tensile strength and flexural strength and moisture expansion noting that they meet the criteria of Brazilian standards.

WATER REUSE APPLICATION IN UNIFAMILIAR GREY RESIDENCES

Marco Antonio Rossi, Mariana Cintra Elias

This research aims to present sustainability issues with the reuse of gray water. More precisely the water reuse used in sanitary bowl of a small-family residence lower financial income. Is adopted the appropriate technology to improve the financial cost of questions for the final project. The methodology was qualitative and quantitative with applicability in low financial cost building project. The search result is a building project with presentation of the total cost for the possible viability of a gray water recycling system in single-family residence.

PROTOTYPE OF AN ELECTRIC TRICYCLE APPLIED TO SAFE AND HEALTHY WORKPLACE ACCESSIBILITY, PROVIDING SOCIAL INCLUSION

Claudiner Mendes de Seixas, Cristiane Prado Marin, Juan Paulo Robles Balestero, Higor Dalbon da Silva

This study aims to build an adaptive electric tricycle to promote accessibility safe and healthy in work environment and the social inclusion for people with reduced mobility. To ensure user safety, the tricycle was built with "metalon" giving it high mechanical strength, bicycle wheels with inclined axis to ensure stability, disc brakes and parking brakes, swivel chair with cushion for easy embarkation/disembarkation and provide greater comfort, horn and lights for safety signs, floor to support the feet and hand controls. The batteries are rechargeable and the electric motor (brushless), free of noise pollution, is high performance providing greater autonomy. The front wheel drive eliminates the need to differential of traction in the back axis. The study was conducted with technical school students in order to stimulate their interest in the safe and assistive technology areas and for the social advancement of knowledge.

TREE-LIKE DECISION MODEL FOR CLASSIFICATION OF FUNCTIONALITY IN PATIENTS WHO HAVE HAD CEREBROVASCULAR ACCIDENT

Luciana Moura Mendes, Danyelle Nóbrega de Farias, Ingrid Davis da Silva Gadelha, Geraldo Eduardo Guedes de Brito, Kátia Suely Queiroz Silva Ribeiro, Ronei Marcos de Moraes

The Cerebrovascular Accident (CVA) is a chronic non-communicable disease and, currently, one of the major causes of functional incapacities and involvement in adults. This study has developed a decision support model using The Lawton scale in order to identify the dimensions that classify the degrees of reliance on cases after CVA. This is a longitudinal study clipping with hypertensive patients who had suffered CVA, admitted to a public hospital in one state's capital of Brazil. It was found a homogeneous distribution from subjects among gender, with predominance of subjects over 60 years old. The result was based on a tree-like decision support model that was able to classify 84.6% of the sample. The proposed model helps the classification of levels of dependence in the cases after CVA in relation to The Lawton scale dimensions; therefore, contributing to planning and execution of therapeutic intervention.

SUSTAINABLE DESTINATION FOR THE URBAN TREE PRUNING WASTE

Ana Júlia Ferreira Rocha, Renata Leon Paula de Souza, André Luiz de Lima Reda, Gilberto Teixeira da Silva

The disposal of urban tree pruning waste is an environmental problem. Overgrown tree branches may cause short circuit, urban electricity distribution networks to interrupt supply and risks to people passing by. In São Paulo City, AES Eletropaulo (the supply company) prunes urban trees in partnership with the municipality. Although most of their waste goes to landfills and garbage dumps, a fraction undergoes a composting process. This study analyses sustainable alternatives for permanently disposing such compost and the remaining tree parts, based on literature and a case study: the "Serraria Ecológica" project, carried out by the Guarulhos's municipality. Conclusions are that composting is a suitable alternative in terms of economy, sustainability and implementation ease. In compliance with the principles of environmental and social liability, this alternative is expected to contribute to the sustainable maintenance of both the public, and private sector

CALIBRATION OF TIPPING BUCKET RAINFALL GAUGES: A METODOLOGY FOR FIELD DATA ANALYSIS AND CORRECTION

Matheus Veiga Mansano, Ruben M. Crivelari, André Luiz de Lima Reda, Magda A. Salgueiro Duro

Rainfall data have vital importance for infrastructure and population protection, e.g., when applied to flood or landslide forecast, either in Brazil or throughout the World. Given the emergency of such situations, rainfall is commonly measured by tipping bucket gauges – automatic devices that allow for immediate transmission of information. Data are generally obtained from sites all over the country, which, sometimes, undergo poor maintenance, due to bad planning or access hindrances – what affects confidence on them – or, perhaps, induces inadequate decisions during emergencies. The technical literature emphasises that tipping bucket rain gauges tend to present measurement errors (usually, deterministic) when submitted to rainfall rates different from those considered at calibration. The paper presents a methodology both practical (standard equipment) and numerical (data correction algorithm), special for tipping bucket, rain gauge calibration, that allows for equipment and, in a possible future, gauge certification – such as to guarantee field-data quality.

SPECIAL TRACK II – PT1

TEAMCOACHING IMPORTANCE IN CONTINUOUS IMPROVEMENT PROCESSES

Luís P. Marques, João Pedro Couto

In a global market organizations aim to constantly improve their competitiveness, to at least maintain their market share, increasingly threatened by competition. This environment requires organizations work in a system of continuous change and learning. By implementing continuous improvement programs, companies strive for excellence. The main goals of these programs are improving productivity and hence competitiveness. Its success depends, among other factors and in strong extent on the ability of people to acquire new behaviors. In other words, success grows in reverse measure of the resistance of the employees. TeamCoaching helps to overcome resistance to change and to create a learning environment. Performing TeamCoaching sessions contribute positively to the successful implementation of continuous improvement programs in organizations.

THE IMPORTANCE OF INTEGRATED IMPLEMENTATION OF LEAN CONSTRUCTION AND BIM FOR IMPROVING THE SUSTAINABILITY OF CONSTRUCTION PROJECTS

Luís P. Marques, Luís M. Santos, João Pedro Couto

The implementation of Lean thinking in construction companies has gained a recognized space in the building industry. Based on the pillars of respect for people and continuous improvement, Lean Construction's main objectives are the reduction of waste and customer satisfaction, across the value chain. These pillars and objectives are the guide and the guarantee for improving the sustainability of construction projects. Presenting itself as an integrated process built on coordinated and reliable information, BIM provides more efficient collaborative process between different actors. This allows the creation of coordinated documentation, accurate views, performance reviews of buildings, estimated costs and construction times with more safety, speed, economy and reduced environmental impacts, ensuring higher levels of sustainability. The integrated implementation of Lean Construction philosophy and BIM methodology adds a second order value, not achievable otherwise.

USING BIM IN CONSTRUCTION PROJECTS MANAGEMENT

Francisco Reis da Silva, João Pedro Couto, Luís M. S. Pimenta, Pedro M. L. Salgado

The progressive technological advancement of tools, materials and construction techniques also caused the increase of the specialties that make up a building and hence its complexity, as result of the constant search for innovation, comfort and convenience for users. BIM is a response to the need to harmonize and coordinate the various tasks and specialties involved in a project, allowing to identify and correct interferences between the various projects on time without putting into question the deadlines, avoiding rework and extraordinary expenses with demolitions, repairs and corrections of errors derived from errors or omissions in designs and even erroneous readings of the projects, since it allows to check and interpret in real time in a 3D model, as will be the building and giving full freedom and information for reading the project, allowing even to plan and control the "Time" and "Cost" variables more effectively and of organized manner.

APPLICATION OF BIM IN INTEGRATED MANAGEMENT OF CONSTRUCTION PROJECTS OF SINGLE-FAMILY RESIDENTIAL BUILDING

António J. C. Marinho

For the management of construction projects there is a need for a project perception from the three key perspectives: the designer, the builder and the owner. This study focuses on the use of an integrated process based on a model where projects are created as smart objects allowing its modeling, analysis and collaboration at any stage of the project life cycle, in order to enable the full integration of all stakeholders to use the experience and knowledge of each to add value to the project, the BIM-IPD. At a first stage, the BIM process will be introduced in the design phase of a single-family residential building allowing to analyze the integration and interoperability between the different specialties. The second phase is the construction of the building based on the model. Specifically this study aims at the demonstration of implementation and application of BIM- IPD project management in single-family houses.

BIM TOOLS AND PROCEDURES FOR ENERGY EVALUATION AND OPTIMIZATION IN BUILDINGS

Luís M. Santos, João Pedro Couto

Currently there is a growing concern about climate change resulting from increased CO₂ emissions, leading to an increasing demand of buildings that are more sustainable and energy efficient. The AEC industry have been acquiring more demanding standards of sustainability and energy efficiency, requiring analysis processes to be more complex and integrated with each other. Therefore, it has become vital to implement BIM, enabling greater efficiency in the collaborative process between actors. Thus, the use of BIM can contribute to sustainability through forecasting energy consumption and their usage costs with credibility, reliability and consistency of results. The study of the benefits and barriers to the introduction of BIM in energy analysis of buildings and the analysis of the interoperability between BIM tools and specialized software for energy analysis becomes relevant, as well as the study of workflows that provide good efficiency, which will boost its correct implementation in the AEC industry.

USING RAPID PLANT ASSESSEMENT TO MEASURE THE LEAN STATUS IN CONSTRUCTION PROJETS

Luís P. Marques, João Pedro Couto

To start a continuous improvement project in organizations one need to know where organizations are in terms of environment, culture and human thinking and behaviors. Rapid Plant Assessment is one of the tools that fit this goal. In fact it can come up with a very accurate perspective of where organizations are in terms of benchmarking with their competitors. RPA has been used since 1998 in more than 400 times and in more than 150 types of enterprises. The aim of this paper is to show that it is possible to apply this approach in construction projects, advantages and initial obstacles in using it.

BIM-FM FOR SOCIAL HOUSING MAINTENANCE

Ana Alves, Fernanda Rodrigues, Romeu Vicente, Aníbal Costa, Manuel Guedes

The enterprises responsible for the management of social housing face great problems related with the high degradation levels as a consequence of the lack of maintenance actions. Nowadays refurbishment and maintenance of buildings is a major concern not only in respect to durability and performance requirements of the building itself, but also on the social level. The reactive maintenance is a non sustainable strategy that leads to high investments (based on deep rehabilitation and retrofitting actions), being crucial to plan and manage actions of continuous and preventive maintenance of buildings. BIM aiming the building management gives a great and reliable support to manage the preventive and reactive maintenance during service life giving a big data integrated with the 3D model. The aim of this paper is to show how to implement the maintenance management supported by preventive maintenance plans applied to social housing in Portugal using BIM-FM.

TECHNICAL SESSION – PT2

SOFT WATER IN HARD ROCK BEATS UP BOTH STICKING: IMPORTANT ROLE OF SUSTAINABILITY IN THE WORLD TODAY

Diva Lea Batista da Silva

Proposal for a work with of comic strips and cartoons texts in the classroom, based on Lipman (1990), Rath (1977) and Batista da Silva (2000), within a constructive interactionist perspective, in order to sensitize primary and secondary school teachers on the need to raise awareness among students of the importance of the role of sustainability in the world today, through the analysis of these texts, accentuating the importance of language in cultural transmission of students.

NANOTECHNOLOGIES' CONTRIBUTIONS FOR THE PRESERVATION OF NATURAL RESOURCES AND ENERGY GENERATION

Nasser Mahmoud Hasan, Bianca Dall Gallo Marion

Nanotechnologies, which can be defined as a multidisciplinary and interdisciplinary field of science and technology that works with nanometric structures (<100 nm), are increasingly present in the development of new products and industrial processes, affording numerous opportunities to develop new products and materials. With the appropriation of nanotechnology knowledge there is a search for solutions to the problems faced with the lack of water and sanitation, energy and food. These adversities have affected many countries in the world, and since it deals with vital goods, is of paramount importance that measures be implemented to resolve efficiently and quickly. In this paper will be presented the solutions found through the use of nanotechnology for the resolution or alleviation of the problems with water and sanitation, energy and food.

MAPPING OF NATURAL RESOURCES AND POTENTIAL FOR GREEN ECONOMY IN BRAZIL

Vadson Bastos do Carmo, Nasser Mahmoud Hasan

Green economy is already a global reality due to scarcity of natural resources for power generation and development of consumer goods with reduced dependence on fossil sources of non-renewable energy such as oil and coal. In Brazil, which has a large comparative advantage due to the abundance of natural resources, both water and renewable biomass, still needs more investment and innovation in these sectors. In this article, the mapping of some alternative natural resources will be presented in Brazil, and opportunities for economic, social and environmental growth in productive and sustainable manner. Following, a new context to supply the needs of the main production chains, with innovations from the optimization of agricultural land, through the efficient use of energy resources, wastewater treatment in all production processes, including the creation of values by the use of recyclable, renewable, and low-carbon materials.

LOW COST SYSTEM FOR WATER HEATING, USING POLYETHYLENE HOSE FOR APPLICATION IN KITCHEN UNITS OF DETENTION

José Aparecido Silva de Queiroz, Adriano de Souza Marques, João Francisco Escobedo

The development of this project is characterized by an existing need in the prison system, where the use of heated water can be determined as an important element for the sterilization and maintenance of the collective health of inmates. This study shows the results of the

efficiency of a solar heating system Budget (SASBC) as a substitute for conventional systems (gas boiler and / or electric), where water has a high temperature by a set of coils constructed with hoses black polyethylene. The results obtained through the acquisition of data showed that the use of this type of sustainable technology can be adopted as an efficient solution, providing a considerable reduction in operating costs, and promote the reduction in the consumption of water and detergent, a result that directly impact in the environment.

IMPLEMENTATION OF TECHNOLOGICAL RESOURCES SUSTAINABLE TO PROMOTE PEOPLE WITH DISABILITIES ACCESS THE INFORMATION TECHNOLOGY

Felipe Aparecido Alexandre, Wenderson Nascimento Lopes, Alexandre C. Almeida, José Aparecido Silva de Queiroz

Currently the Information Technology increasingly assert themselves as pillars of communication and interaction with the world , and empowerment means enabling both the acquisition of individual emancipation , as the collective consciousness needed to overcome "social dependency and political domination " . However, people with disabilities are excluded from these technologies and so, public spaces, schools, labor market, and living in society. It is in this context that the public policies of integration of persons with disabilities in all aspects of life, with the help of assistive technology or sustainable technical aids, become extremely relevant. This work will be demonstrated the Assistive Technology equipment made by Automation Engineering course students to support disabled people enrolled in special education school

ELECTROCHEMICAL SYNTHESIS AND CHARACTERIZATION OF DOPED POLYANILINE WITH COPPER AND COBALT FROM SPENT LITHIUM-ION BATTERY

Marcio Vieira Rodrigues

Technological progress has led to a significant consumption of lithium-ion batteries, which use metals such as cobalt, copper and lithium, whose natural sources are not renewable, requiring the development of recovery and recycling. It is estimated to be consumed three billion US batteries only. In Europe five billion batteries were produced in 2000. In Japan it is estimated that around six billion batteries were produced in 2004. In this work was made the recycling of copper and cobalt from spent lithium-ion batteries. These metals were used in the electrochemical synthesis of polyaniline. The electrodeposition was performed using ITO glass (or In₂O₃ / SnO₂) as working electrode, which can be used in the manufacture of photovoltaic cells. The samples were characterized by electrochemical techniques, infrared spectroscopy (FTIR), Ultraviolet-Visible (UV-VIS), X-ray diffraction and scanning electron microscopy (SEM).

MAJOR HEALTH HAZARDS ASSOCIATED WITH THE USE OF DIGITAL TECHNOLOGIES: SCHOOL ROLE FACING THAT CHALLENGE

Herik Zednik, Camino López, Liane M. R. Tarouco

The fast and intense technological change has provided more access to the information and knowledge, but also sets new challenges to the school of the XXI century. These challenges are consolidated in concern around the new health risks associated with the improper behavior of the use of digital technologies that have emerged in the last decades such as Internet Addiction Disorder (IAD), Economics of Attention (Disorder of Attention Deficit and Hyperactivity Disorder), sleep disorders, Info-obesity, Slacktivism, Nowism, NEWism, Multitasking, social isolation, digital Narcissism - body dysmorphic disorder (excessive Selfies), phantom ringing syndrome, Nomophobia, digital Nausea (Cybersickness), Facebook depression, among others. This provokes a pressing need for consideration of what is the role of the school forward to these new challenges. The purpose of this study is to describe the main addictions and habits reinforced by the virtual world, in order to promoting a reflection about the subject. The methodology of this study is characterized as a descriptive theory.

ACTION OF CHEMICAL LEASING IN PRODUCTION PROCESSES AIMING AT SUSTAINABILITY IN BRAZIL

Marcos José de Barros, Maria Célia de Oliveira, Manoel Gonçalves Filho

The Chemical Leasing is a collaborative production model in product management oriented to chemical processes. The main objective of this study is to point an alternative management, more sustainable for the manufacturers and consumers of chemicals products in Brazilian production process. Attention turns to the admission of an efficient business model, contemplating the purchase and sale of chemicals products. The work consists of orientation, optimization, shifting the focus of the increase in sales volume for a value-added approach towards sustainability. The approach used was the exploratory study designed from material already published about this collaborative production model. The contribution is to point out the companies that use the management model focused at sharing responsibilities and that they can expect a cost savings compared to traditional systems, this format possibly will save natural resources.

CONSEQUENCES OF FUTSAL EARLY TRAINING FOR CHILDREN IN AGE GROUP FROM 06 TO 10 YEARS OLD: A CASE STUDY

Derival Pires dos Santos, Jacio L. da Silva Pereira, Rodrigo C. Borges

Futsal is a sport practiced in a number of countries, spread by the five largest habitable continents. In Brazil, this sport is commonly taught in schools, integrating curricular exercises the disciplines of Physical Education. Given proportion of the sport, this work aims to verify what the consequences of early training futsal are for children aged six to ten years old. Research will be a quantitative and against the backdrop of a state school in elementary school, located in Goiânia, Brazil. Questionnaires will be applied to those responsible for students involved in research, collecting information about the coming of early training. This initiative aims to guide the exercises adopted by the professionals of Physical Education in order that it can analyze the right moves in practices, contributing to the motor development of the students and making their classes do not become stressful or repetitive.

PHYSICAL EDUCATION AND ITS RESULTS IN THE FIGHT AGAINST SEDENTARISM STATE IN FUNDAMENTAL SCHOOLS OF INHUMAS MUNICIPALITY - GO, BRAZIL

Derival Pires dos Santos, Jacio L. S. Pereira, Rodrigo C. Borges

The rate of obese children and adolescents has increased steeply in Brazil, worrying the authorities. Nutrition education and physics involved are major factors to reverse the state, and in this scenario, the school can become an ally of incentive policies to combat inactivity in this age group. According to statistics, about ninety-five percent of Brazilian children aged between seven and fourteen, from different social classes, races and cultures, are attending school for at least four hours. In view of these facts, this study aims to investigate the possible practices worked to combat sedentary lifestyle in primary schools in the city of Inhumas-GO, Brazil. The data will guide future initiatives to be paid in the curricula of disciplines of Physical Education, or even interdisciplinary proposals combined with the theme.

TECHNICAL SESSION – PT3

EVALUATION OF OCCURRENCE OF PHARMACEUTICALS IN THE WATERS OF DAMS OF THE SÃO PAULO STATE, SP, BRAZIL

Helena Miho Shihomatsu, Elaine Arantes Jardim Martins, Marycel Elena Barboza Cotrim, Daniel Temponi Lebre, Maria Aparecida Faustino Pires

The objective of this work was to evaluate the presence of 21 pharmaceutical of different therapeutic classes, 1 illicit drug and its major metabolite in the waters of dams of the São Paulo State, SP, Brazil. Dams are: Atibainha, Cachoeira, Paiva Castro, Salto Grande, Ribeirão do Pinhal, Cabuçu and Tanque Grande. The first three are part of the Cantareira System, the main water reservoir of supply the metropolitan region of São Paulo (MRSP). The quantitation of the compounds was performed by method developed and validated solid phase extraction (SPE) followed by reversed phase liquid chromatography coupled to mass spectrometry in tandem (LC-MS/MS). The compounds detected were atenolol, benzoylecgonine, caffeine, carbamazepine, chlorthalidone, cocaine, losartan and valsartan. Caffeine was found in all the reservoirs. The results show that the waters of the Salto Grande reservoir are most impacted by the presence of target compounds, compared to other reservoirs studied.

CHARACTERIZATION ANTROPOCULTURAL LANDSCAPE IN CABEDELÔ (PARAÍBA - BRAZIL)

Lúcia da Silva Vilarinho, Antonio Joaquim da Silva, Fabrício Napoleão Andrade, Francisca Carla Silva de Oliveira, Jossivaldo de Carvalho Pacheco, Adriana Saraiva dos Reis, Sílvia Maria Santana Andrade Lima, Wilza Gomes Reis Lopes

The North Paraíba River Estuary located in the state of Paraíba, Northeast Brazil, with a 20 km long area, approximately, goes from the city of Bayeux to Cabedelo, place of its mouth. In the region, anthropogenic actions have caused conflicts and risk to the maintainability or estuarial support in its natural and human formation, sometimes by the pressure of population on the environment, or by pressure that degradation has on the people who live there. All this demand dynamic and coordinated intervention of state authority (State) and society to face the impacts caused on its natural species and the inhabitants, through imbalance correction measures already installed in the environmental dynamics of social and physical-biological resources, in defense of the environment and its biodiversity, where mankind can live with others in an ethical, fair and balanced way.

PIAUI QUALISUS-NETWORK: REORDERING AND REORGANIZATION OF STATE HEALTH SYSTEM TO STRENGTHENING OF HEALTH REGIONS

Lúcia da Silva Vilarinho, Cristiane Maria Ferraz Damasceno Moura Fé, Ailana Rodrigues Lira, Ana Maria Menezes Neiva Eulálio Amorim, Annatália Meneses de Amorim Gomes, Helena Paula Guerra dos Santos, Ioli da Silva Piauilino Ferreira

The QualiSUS Project - Network of the Ministry of Health/BIRD, in the State of Piauí (2011-2015), supports the implement process, organization and governance of an Integrated Health System structured from the Health Care Networks in the region Between rivers, composed of 31 municipalities (1,167,710 inhab.). The objectives are to qualify attention and health management for humanized and decisive in maternal and child care network, urgency, psychosocial, chronic diseases, persons with disabilities; strengthen regionalization and decentralization through a process of negotiation and agreement-making at the regional level, and install the Patient Transport System Elective-STPE. The project has the challenge to improve indicators of low quality of services and resolution of care provided to the population.

IMPLEMENTATION OF HORIZONTAL CLOSED CONDOMINIUMS AND URBAN SUSTAINABILITY: A STUDY IN TERESINA CITY, PIAUI, BRAZIL

Wilza Gomes Reis Lopes, Karenina Cardoso Matos, Raniere Bezerra de Araújo, Cassio Nascimento Duarte, Rochelle Hermenegilda Nunes Nogueira, Guilhermina Castro Silva, Nícia Bezerra Leite

With the increasing population growth in urban areas, the demand for homes that meet the different desires of society, related to quality of life, location and security among others, has

become increasingly larger. In Brazil, closed condominiums have become attractive projects due to security provided by the walls and surveillance system, and the presence of green areas, leisure and social interaction. As it occurs in the rest of the country, have emerged in the city Teresina, Piauí State, several condominiums, which offers security, without giving up the comfort of single-storey houses. These projects are concentrated in eastern and southeastern areas of the city, many them characterized by removing the native vegetation and with changing the urban landscape. This study aimed to characterize and analyze existing condominiums along the BR-343 highway, focusing on interference and impacts in the urban landscape.

INTEGRATED COASTAL MANAGEMENT IN HYDROGRAPHIC BASIN IN COASTAL ZONE

Renata Cristiane Fusverk da Silva, Eduardo Juan Soriano Sierra

The theoretical recital is based on the ICM program and subsidizes the used methodology, which included the adaptation of questionnaire prepared by the University of Rhode Island's Coastal Resources Centre (USA). From the objective occurrences of these interactions we conclude that the RRB has its own structure and dynamic and, in the case of human alterations especially, there is the need for persistence aiming to start a problem solving strategy. Based on the results the practical implications for the study of the plan preparation to adopted in the RRB's Integrated Coastal Management program are discussed.

MONITORING CHEMICAL PARAMETERS OF WATER QUALITY: A STUDY IN PARANAPANEMA III AND IV RIVER BASINS

Oswaldo Tarelho Junior, Cássia Maria Bonifácio, Célia Regina Granhen Tavares

This study aimed to perform the monitoring of water quality and assess the impact of the use and occupation of the land under the conditions of quality of some springs in the watershed of the river Paranapanema III and IV, in the State of Paraná, Brazil. To this end, samples were taken at six sampling sites and water analyzes based on chemical quality parameters such as total phosphorus and nitrogen compounds, between the months of February 2013 and July 2014. Conformity of the results was evaluated, based on CONAMA Resolution 357/2005 and found that part of the samples were non-compliant with the standards established by law and that the supply of such nutrients in these streams can occur due to the activities developed in the surroundings or to the natural cycling of elements.

THE CITY AND THE DIALOGUE WITH SUSTAINABILITY

Leticia Barroso, Vera Lucia F. Rezende

The city needs to be rethought from the people living in it. The objective of this paper is to relevant the important elements to think about the city we live in. The reflection on the city is not new, since the beginning of the last century, thinkers have debated it. For a long time it was thought as place of modernity and progress as opposed to rural areas. Reflect on the city's growth and its impacts and, from the debate, identify what the city project which is often permeated by the aegis of consumer culture, this is a challenge. And so, through the participation of the population of Sorocaba, State of São Paulo - Brazil, that collectively build the project of a city of the future.

DEVELOPMENT OF A LOW COST ENZYMATIC BIOSENSOR BASED ON MAGNETIC NANOPARTICLE/CHITOSAN TO DETERMINATION OF PHENOLS IN ENVIRONMENTAL MATRICES

Juliana C. Batista, Augusto Etchegaray Jr., Elizabeth F. de Souza, Renata Kelly Mendes

Among the most important contaminants in wastewater, we highlight the phenols, which can be highly toxic to animals and plants. The search for more efficient analytical procedures for water

monitoring has stimulated the development of new methods. Thus, biosensors are considered powerful analytical tools for this purpose because it uses the biorecognition, which results in rapid and sensitive responses combining the selectivity of biochemical reactions with operational simplicity. The use of nanotechnology associated with the construction of biosensors has excelled in research in this area. Furthermore, the use of biopolymers such as chitosan is an alternative to make the medium more biocompatible allowing the maintenance of the biological activity of the biomolecule. This work aims at the detection of phenolic compounds, using hybrid nanocomposites formed by the association of chitosan and nanoparticles for enzyme immobilization.

PRODUCTS OF ECONOMIC INTEREST OF THE ANFRÍSIO RIOZINHO RESEX: VERTICALIZATION OF PRODUCTION IN THE AMAZON

Manoel Júlio Albuquerque Filho, Simone de Fátima Pinheiro Pereira, Johny da Silva Oliveira, Geiso Rafael Oliveira, Cleber Silva e Silva, Augusto Fernando Souza de Oliveira, Davis Castro dos Santos

The Terra do Meio in the State of Pará-brasilian Amazon preserves a great biodiversity, by the fact of owning more than 90% of its territory still well maintained, has approximately 7.9 million hectares and is part of the second largest biodiversity corridor of Brazil. The objective of this work was to protect the territories and enhance the responsible use of forest resources in the Amazon through the survey of products with economic potential, present in the RESEX Riozinho of Anfrísio, and show the importance of the verticalization of production to the development of the RESEX. Through the research in the field, and informal interviews with residents of the RESEX Riozinho do Anfrísio, identified the main value chains of biodiversity products of populations of Terra do Meio, which are: chestnut, vegetable oils (babassu, chestnut, andiroba, copaiba and oenocarpus bataua), rubber, babassu mesocarp flour, honey and handicrafts.

ORGANIC WASTE RECYCLING: COMPOSTING IN FOOD PRODUCTION IN MEDICILÂNDIA SCHOOLS

Marcílio Garcia Ferreira, Claudiane dos Santos Ferreira, Simone de Fátima Pinheiro Pereira, Cleber Silva e Silva, Davis Castro dos Santos, Augusto Fernando Souza de Oliveira, Johny da Silva Oliveira, Geiso Rafael Oliveira

The preparation of fertilisers in composters is a practice sustainable and favorable to environment. In this way, from composting techniques in schools, by recycling organic wastes, prevents the contamination of the environment and food quality are generated to be used in school lunches. The overall objective of this study was to carry out a project to recycle organic wastes using composting in food production to be applied in schools in the city of Medicilândia-PA. Organic waste were collected at the fairs in the city, and the project applied in the Abraham Lincoln School of Medicilândia-PA. The results showed the interest of actors of the process to collaborate with a project of this magnitude, both stallholders as students and teachers, the vast majority thought this is a good idea to reuse waste, and in consequence produce foods that will serve the students of the school.

TECHNICAL SESSION – PT4

EDUCATION AS A POSSIBILITY OF SOCIAL TRANSFORMATION

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso

The objective of this study was to analyze education as a social transformation of the students of the 5th grade of elementary school of the Municipal School "Ferdnam Gutman." This was a descriptive study, with Quantiquitative approach, which evaluated 38 students of a public school in Santa Ines - MA. The prevalence of the study population indicates that 81.6% study beyond school hours, 73.7% attend school daily, 34.2% can only answer the activities with the help of parents, teachers or friends, 34.2% had difficulties to copy the content to read and hear the phrases spoken in class. The results presented suggest the need to expand the range of appropriate information to students with greater difficulty in solving activities - drawing attention to the teaching practice and new funds available to improve the quality of education and reduce the difficulties of students.

BIOPSYCHOSOCIAL EDUCATION DEVELOPMENT AND QUALITY OF LIFE AMONG THE ELDERLY 65 AND 75 YEARS OF AGE IN SANTA INES CITY, MARANHÃO STATE, BRAZIL

Antonio da Costa Cardoso Neto

This study aims to promote education in biopsychosocial orientation in people between 65 and 75 years of age, measuring the result of the improvement in quality of life of those in Santa Ines, -MA-Brazil. This is an intervention test quasi-experimental study with Quantiquitative approach, assessing in a sample of 40 elderly, promoting biopsychosocial education in improving the quality of life of this group. Will be held the collection of data on issues and clinical examinations carried out before and after the intervention in biopsychosocial education in two groups of 20 subjects each, the study group that will receive the intervention and the control group in which they are not realized. It is hoped that the promotion of educational platforms in health for seniors who participate in the study in the intervention group, can minimize the biopsychosocial problems and provide better quality of life.

FACTORS THAT LEAD TO EARLY WEANING WITH MOTHERS OF BASIC UNIT OF PALM TREES HEALTH IN SANTA INES MARANHÃO

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira

This study aims to study the factors that influence the practice of early weaning by mothers attended the Basic Health Unit, Palm trees in Santa Ines / MA. This is a descriptive study with qualitative-quantitative approach, which evaluated the practice of early weaning by mothers aged 17-35 years. The results show that 40% breastfed 1-4 months 30% said they stopped breastfeeding by that needed work, another 20% said they had not received information about breastfeeding and 80% reported not knowing the harmful effects of early weaning for babies. It concludes with this survey that measures are implemented to support health professionals and community as guidance on breastfeeding and disseminate practices that greatly reduce early weaning rates.

USE OF ENVIRONMENTAL EDUCATION IN CONTROL OF PESTICIDES IN PLANTATION IN THE ALTAMIRA AND MEDICILÂNDIA CITIES - BRAZILIAN AMAZON

Irineu Jorger de Souza, Edna Maria Barradas da Silva, Simone de Fátima Pinheiro Pereira, Geiso Rafael Oliveira, Cleber Silva e Silva, Davis Castro dos Santos, Augusto Fernando Souza de Oliveira, Johny da Silva Oliveira

The indiscriminate use of pesticides in agriculture has caused concern among researchers and experts from various countries of the world, since the accumulation of large amounts of pesticides can pose significant environmental risks and human health. The objective was to make an environmental education work applied to a group of vegetable producers in the municipalities of Altamira and Medicilândia, Brazilian Amazon, with a view to preserving health and the environment. Interviews were used, quizzes, lectures, informative booklet, etc. The results showed that most of these farmers do not follow the recommendations prescribed by the manufacturers and required by law for the use of protective equipment, grace period and

disposal of empty containers and one of the greatest dangers posed by pesticides is related to the effects they may have on the health of people, mainly those who are exposed to direct contact.

INVESTIGATION OF THE PYROLYSIS PRODUCTS OF MICROALGAE *Chlorella vulgaris* USING PY-GC/MS

Tâmira T. M. Rodrigues, Marcelo M. Seckler

The increasing need to obtain more sustainable sources of energy and raw materials has attracted attention to processes based on biomass conversion. Microalgae are particularly interesting because they do not compete with human food. Besides, microalgae can be thermally processed to produce both biofuels and useful chemicals. The classes of products obtained by pyrolysis of the *Chlorella vulgaris* microalgae have been investigated using a pyrolyzer directly connected to a GC/MS system, over a wide temperature range (500 to 900°C). Preliminary analysis of the pyrograms has indicated a predominance of aromatic and high molecular weight compounds. Using Ozawa method, the apparent activation energy for this reaction had been calculated from thermogravimetric data. The activation energy evaluation for *Chlorella* has indicated a value of 189 kJ / mol, which is within the typical range for biomass, but is smaller than the value determined for the cellulose.

HELP DESK ASSESSMENT BY AHP

Ricardo Rodrigues Dias de Lima, Rogério Morais Carneiro, Murilo Borges Silva, Victor F. A. Barros

A major concern of house software companies is the quality of the final product, being successful when all or most customer requirements are met. Another relevant point is the support to those users of the software built in the question usability and functionality, which always existed mainly on new acquisitions by the customer. Thus, this work presents an alternative for assessing the quality of care at customer after software deployment acquired using the multicriteria method AHP. The AHP method was applied in evaluating the structure of the Help Desk a software house having as alternatives the need for many changes, little change and no need of changes. As a result, the method proved to be robust pointing the alternative that best represents the quality of help desk customer's point of view. With this, you can also identify gaps in care sector in case of changes.

PHYSICAL-HYDRIC BEHAVIOR OF RED NITOSOL: SUBSIDIES FOR WATER RESOURCES MANAGEMENT IN THE PIRAPÓ-PARANÁ-BRASIL RIVER BASIN

André Jesus Perigo, Francieli Sant'ana Marcatto, Hélio Silveira

The social and environmental character of a watershed is directly linked to the use and management of soils and how it impacts water quality. Thus, the management of river basin should assist in minimizing problems and ensuring the maintenance of its quality, allowing for socioeconomic and environmental development in the area. The objective of this study is evaluating the physical-hydric behavior of Red Nitosol under different uses in the Pirapó-Paraná-Brasil river basin. Samples of Red Nitosol were collected from surface and subsurface horizons under grazing, temporary crops, and native forest. For each type of soil and use was established soil density, particle density, total porosity, permeability and penetration resistance, leading to the finding that the worst conditions were found in Red Nitosol samples under temporary crops, making necessary measures that seek to improve the soil's physical-hydric attributes and ensure the sustainability of the watershed.

ASPECTS OF CHANGES IN CHEMICAL REACTIONS THAT OCCUR IN THE ATMOSPHERE AND INFLUENCE IN THE WORKS OF HISTORICAL HERITAGE OF DECAY

Luiz Pinheiro da Guia, Ana Lúcia Torres Serôa da Motta

The gaseous pollutants in the atmosphere of cities have increased in recent decades and causing harm to humans, animals and plants, that is, life. They degrade and provide considerable losses to the heritage built and integrated assets, because exercise interaction with the surface of rocks constituents of these monuments. The built heritages are a set of real estate and artistic elements. Many monuments are made of stones that have chemical compounds that interact with pollutants. The work deals with a literature review of studies developed by the EPA (United States Environmental Protection Agency) that describe what are the main pollutants of the atmosphere. The search looks for a correlation between the literature review and the conditions of the historic site. Evaluate the effects of the following pollutants: Sulfur dioxide, nitrogen oxides and particulate matter; and identified the most significant damage present in monuments.

USE OF RAIN WATER FOR NON POTABLE PURPOSES IN POPULAR SINGLE-FAMILY RESIDENCE: A PROPOSAL FOR THE METROPOLITAN REGION OF UMUARAMA – NORTHWEST OF PARANÁ

Janaina Conversani Botari, Alexandre Botari, Altair Bertonha

This article aims at the development of an economically viable and sustainable construction system for catchment and storage of rainwater in a building for single-family popular housing in the context of the Northwest of Paraná. Prioritizes the customization of the rational use of water and electricity, in a proposal of reuse of rainwater for non potable uses, to be used in sanitary basins, garden taps, washing vehicles. This work focus on reduction of volume of rain water dumped in galleries and streets promoting the minimization of environmental and financial impacts for public managers. In this context this article also is dedicated to the theme of promotion of greater efficiency in planning intervention, public management and sustainability in buildings in the urban environment, as well as to contribute to the future projects of small buildings Metropolitan Region in Umuarama city, northwestern region of Paraná State.

NONLINEAR REGRESSION ANALYSIS APPLIED TO VARIABLES OF ENVIRONMENTAL COMFORT AS A TOOL FOR THE DESIGN OF SUSTAINABLE ALTERNATIVES IN URBAN PUBLIC OPEN SPACES: THE CASE OF SQUARES OF UMUARAMA-PR

Janaina Conversani Botari, Alexandre Botari, Giuliani do Prado

The goal of this study was to evaluate the significant interaction of two variables of environmental comfort, namely, thermal, related to the obtained values of relative humidity, in open public spaces. This work is dedicated to the theme of quantitative and qualitative analysis of environmental monitoring in urban open public spaces such as the introduction of afforestation, vegetation, green roofs and thermo-acoustic barriers vegetables for auxiliary purposes increase relative humidity and decreased extreme temperatures. The analysis was made using data collected through seasonal environmental monitoring conducted on nine points from three public squares in the city of Umuarama, northwestern region of Paraná State, Brazil, in the period of 2012/2013. The experimental design used was the non linear regression with quadratic polynomial curve. It was obtained a average value of 74% in the non linear correlation coefficient (R^2), which classified the regression as moderate to strong intensity relation.

ANALYSIS OF THE EFFICIENCY OF DISINFECTION OF EFFLUENT FILTRATION AND FILTRATION DITCHES VIA UV RADIATION

Rafael Oliveira Agnholetto, Alexandre Botari, Diego Leonardo Salvador, Tânia Mara Rizzat Salvador

In this experiment has built up a system composed of sand filter and UV reactor, with the purpose of improving the physical and biological parameters of an effluent from UASB reactor, with a Superficial Application rate of 1000 l.m-2.day-1. Tests were carried out chemical oxygen demand (COD), Total suspended solids (TSS), turbidity and Bacteriological. The reduction of parameters by comparing the raw sewage with the Treated was 30.5% on COD, 78.6% on TSS, 94.1% on turbidity and 100% bacteriological. This result is satisfactory, according to the CONAMA resolution 2011/430, which regulates the release of effluents in water bodies, and can also use the treated effluent to the fertirrigation, due the absence of fecal coliform bacteria type, and the high presence of nutrients due to the presence of organic matter.

TECHNICAL SESSION – PW1

NEONATAL RESUSCITATION PROGRAM OF THE BRAZILIAN SOCIETY OF PEDIATRICS: PROFESSIONAL PROFILE OF STUDENTS AND COURSE EVALUATION THEORETICAL PRACTICAL NEONATAL RESUSCITATION - BRASILIA – DF/BRAZIL

Andrea Lopes Ramires Kairala, João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio dos Santos Fogaça, Camila Seixas, Adna Sandriele Oliveira de Lima Medeiros, Caio Moura, Caio Medeiros de Oliveira, Karinne Cardoso Muniz, Marcia Silva de Oliveira

The Neonatal Resuscitation Training Course intends to reduce deaths and complications of newborn babies through training of professional health care in the delivery room. To evaluate professional profiles of the students and verify the evaluation of the course by those students. Cross-sectional study including 2011-2012 courses in Brasília-DF. Collection of data with a structured instrument containing closed questions and simple quantitative analysis. Results: 235 professionals were trained, with 78 (33.2%) R1-pediatric residents, 62 (26.4%) R2-pediatric residents, 6 (2.5%) R3-neonatal residents, 34 (14.5%) non-resident physicians e 47 (20%) nursing professionals. 228 completed the questionnaire: 84.6% to 88.2% reported the concept “great” for organization, course dynamics, theoretical activity or practical activity; 11.8% to 14% qualified as “good” and only 0.5% reported as “regular”. Conclusion: Although, the training course is organized for all health care professionals, the study showed a majority of physicians. Nevertheless, most of students evaluated the course as “great”.

YOUNG ACADEMICS IN MEDICINE: A FIRST CONTACT WITH THE PEDIATRICS

Sabrinny Pedroza Martins, João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio dos Santos Fogaça, Camila Carlos Seixas, Natalia Ramires Kairala, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

The presentation of the Project Right – PMC has as objective the incentive for the academics of course of medicine if they become active in the process of learning within a real-world scenario, where policies for child health care are experienced within the school environment. The PMC is used as evaluative requirement discipline Community Interaction, developed in public school elementary school in DF/Brazil where are performed dynamic involving supply, collection of information about clinical conditions and social of children, collection of anthropometric measurements and evaluation of growth curves. The experience is eminently practical, provides the school community an approach to health promotion and disease prevention; encourage academics to know the reality of the child's needs and potential in one of its cores of socialization. The disclosure of the approach used for the teaching of medicine contributes to the improvement of the training of new professionals with social awareness improved.

HEALTH MANAGEMENT: POSSIBILITIES AND LIMITS OF A FAMILY HEALTH UNIT OF THE INTERIOR AND ONE OF THE CAPITAL OF RN

Taisy Rincon Siqueira, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, José Kairala Filho, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

The health management is based, currently, the pact signed between the spheres of government which are aimed at the reduction of health inequalities and expanded access to quality. The aim of this study was to compare the possibilities and limits of work between 2 USFs of different realities. This is a descriptive study conducted from experience developed in a USF located in the capital and another inside the RN State. The direct observation of the dynamics of services and participation in management meetings were the means of analysis. Structurally the USFs did not present differences that sign as a problem. The health promotion activities, in their majority, are fixed at Christmas; in dublin, Ireland are situational. It was realized that the possibilities and limits of work in a USF is directly related to the form of management.

STUDENTS OF MEDICINE AND THEIR INITIAL PERCEPTION ABOUT THE SINGLE HEALTH SYSTEM

João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio dos Santos Fogaça, Camila Carlos Seixas, Natalia Ramires Kairala, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

The reality of medical education is still far short of the goals designed by SUS, it is important to draw up a profile of action to establish new educational policies. The aim of the present study was to investigate the change in the perception of academic as the SUS after experience in the discipline of community interaction. Applied to an instrument structured collection of academics at the beginning and conclusion of the discipline. All the evaluated presented concept regarding the concept of SUS, only 43.75% are unaware of the gratuitousness of these, only 9.375% are unaware of the universality and the completeness of the SUS. Causes that interfere with the quality of the service provided by the SUS, quoted the mismanagement of resources, lack of investment and poor working conditions. The discrepancy between their regulatory guidelines and reality prepared for the population. Of the respondents, group 21.85% not working in SUS.

STRESS IN THE EDUCATIONAL AREAS: CORRELATION BETWEEN THE SINTOMATOLOGICAL DIMENSIONS OF BURNOUT SYNDROME AND DEPRESSION

Marcia Silva de Oliveira

Burnout syndrome symptoms and their dimensions can be responsible for the disease process of teachers and also, the resulting damage to the higher education and secondary education, from its occupation provide conditions for the development of this pathology. Investigated the specific responses to the questionnaires, interviews and the speech of the teachers to identify the indications of the possible presence of burnout syndrome of teachers belonging to undergraduate and postgraduate courses (courses in Humanities and health sciences) of the higher education institutions (HEI) and teachers working in the public institutions of secondary education in the Federal District (DF), Brazil. The methodology was used to route the ethnographic qualitative approach. In the results, the analysis of collected materials allowed correlation of the burnout syndrome with symptoms and dimensions as well as infer the same syndrome interferes with the quality of the teaching work.

IATROMETODOLOGY AND ETHNOGRAPHY USEFUL TOOLS FOR RESEARCH AND MEDICAL PRACTICE

Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala, Antonio da Costa Cardoso Neto, Vilma Dias da Costa, Pâmela Santos Marques

Burnout syndrome, difficult to diagnosis, is a reaction to chronic emotional stress characterized by physical exhaustion and / or psychological, for a cold and depersonalised attitude toward people and a sense of inadequacy in relation to the tasks to be performed. Therefore, taking this as an example, we intend to demonstrate that medical research, based on the dictates of iatromethodology and ethnography, the overall goal should be to develop and sharpen your clinical judgment, reasoning and therapeutic knowledge and skills-sense perceptual and manuals, training of professionals, with a view to having them master the methods and techniques required, and who acquire the attitudes and ethical values relevant to meet patients hospitalized or not.

THE BULLYING AND MORAL INJURY IN PROFESSIONAL ENVIRONMENT

Pâmera Santos Marques, Marcia Silva de Oliveira, Vilma Dias da Costa, Antonio da Costa Cardoso Neto

Bullying and moral injury involve humiliation to employees in their work environments. The occurrence of discriminatory acts illegal in a continuous manner that causes damage to the health of the victim is classified as bullying. By law, to be considered bullying the practice has to occur for at least six months, at least once a week, and by means of repeated acts. While moral damage are isolated cases or specific humiliation in public. Nicknames or constraints allocated by the head that do not have physical alteration of official one more possible damage the image. The doubt is, because people who are professionally capable of leading a team has these attitudes routine that affect the health of the employee? It is believed that they are not prepared for the competitive world of business and end up more to the company that its base (labor), part this essential for a good performance/growth of the institution.

ASPERGER's SYNDROME: THE IMPORTANCE OF EARLY STIMULATION

Vilma Dias da Costa, Marcia Silva de Oliveira, Pâmera Santos Marques, Antonio da Costa Cardoso Neto

Asperger's Syndrome is a Pervasive Developmental Disorder (PDD), resulting from a genetic disorder and has many similarities with autism, which was described in 1944 by pediatrician Hans Asperger. The family and the multidisciplinary professional has a very important role in the development of a person with special needs. This mediation between family and professional provides a secure environment, thereby strengthening the daily contact. However, it is extremely important that the family leave not only for the professional care of their children. We all need to be committed, walking together to get satisfactory results. A well-informed family knows what to do in difficult times for knowing the symptoms of the syndrome of their children, known around conflict situations, establishing well-being. The purpose of this research is to highlight the benefits that early intervention is the bearer of Asperger Syndrome, including them in society, and the research method, a daily follow up with a boy with syndrome in question.

TECHNICAL SESSION – PW2

DIVERSIFIED SCENARIOS: AN OPPORTUNITY FOR LEARNING AND GROWTH FOR THE STUDENT OF MEDICINE

Sabrinny Pedroza Martins, Gustavo Gomes Laurindo, Adna Sandriele Oliveira de Lima Medeiros, Camila Carlos Seixas, Caio Dos Santos Fogaça, Luana Nogueira Lima, João Paulo Barbosa de Jesus, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

The physician must understand the patient globally, their wants and needs. We aimed to know a house of recovery of chemical dependents of public health system, allowing interaction with

patients dependent on chemicals, expanding the vision of SUS, its potentials and difficulties, spurring the discussion on strategies to overcome barriers. Visit to a house of recovery for chemical dependents, in chácara in municipality Gama/DF, all internal male, with task assignments daily in order to reduce the anxiety caused by abstinence and restore individualities. It is a continuous process that requires discipline and enforcement of domestic tasks and profitable. The activity has offered a unique opportunity for understanding the reality of the public sector, lacking in this area, expanding the vision of SUS, its potentials and difficulties, as well as the existence of a specific population without appropriate assistance, in addition to minimizing the initial prejudice with the public system.

EVALUATION OF PERFORMANCE AND THE IMPACT OF ERRORS IN PRACTICAL ACTIVITIES OF THE RESIDENTS OF THE FEDERAL DISTRICT IN THE COURSE THEORETICAL PRACTICAL NEONATAL RESUSCITATION

Andrea Lopes Ramires Kairala, João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio Moura, Caio dos Santos Fogaça, Camila Seixas, Adna Sandriele Oliveira de Lima Medeiros, Caio Medeiros de Oliveira, Marcia Silva de Oliveira, Karinne Cardoso Muniz

98% OF births in Brazil occur in hospital, the knowledge of the technique of neonatal resuscitation by professionals is crucial to the reduction of morbidity and mortality rate. We aimed to verify the performance of residents and the errors more applicants in the practical activities of course theoretical/practical neonatal resuscitation. We performed a cross-sectional study with 126 resident physicians who performed the neonatal resuscitation course run by the Brazilian Society of Pediatrics/DF between 2011/2012. Data collected from theoretical evidence in the form of pre/post test. The variation in the performance of residents evolved from 76,78% of correct answers in the pre test to 94,77% at post test. The errors more incidents were 30,76% related to tracheal intubation, 23,77% the cardiac massage and 30,76% ventilation with bag and mask.

BREASTFEEDING BY THE OPTICAL PRIMIPAROUS MOTHER: A PERSPECTIVE PROMOTION AND SUPPORT COMPREHENSIVE

Taisy Rincon Siqueira, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

Breastfeeding has sociocultural influences, a fact that must be taken into account when we seek an effective practice. The aim of this study was to identify the agents and factors that interfere with the exclusive breastfeeding according to the mother's perception of primiparous. We used the study quanti-qualitatively descriptive with primiparous who underwent pre-Christmas in UBS public data were collected by semistructured instrument. 37.5% Reported having been guided by pediatricians; 45.8% by nursing staff; social worker 4.2% and 12.5% claim they have not received any guidance. 80% cited influences from the social environment and say that these acted positively in breastfeeding. Among the guidelines include: positioning the child, nipple massage, milking; sunbathing, hygiene care and exclusive breastfeeding. The breastfeeding is influenced by several factors, but the rates of mothers who claim they have not received any guidance alerts us to possible failures in the process of breastfeeding counseling.

ACADEMICS IN MEDICINE x ADOLESCENTS: A TWO-WAY STREET IN THE TRANSMISSION OF KNOWLEDGE

João Paulo Barbosa de Jesus, Luana Nogueira Lima, Caio dos Santos Fogaça, Camila Carlos Seixas, Natalia Ramires Kairala, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

Adolescence is a period of biopsychosocial transformations characterized by the pursuit of self-knowledge. This study aimed to understand the level of information of adolescents about health, sexuality, drugs, contraceptive methods and sexually transmitted diseases. Through meetings in

public school-DF, was held workshops on: self-esteem, DST/AIDS, contraception and drugs of abuse. There were educational activities, sharing experiences in a playful way and informal. There was interaction and partnership between groups adolescents/academics. During the visits, we identified little knowledge on the topics discussed, mainly, contraceptive methods. A large proportion of adolescents have already had direct contact with drugs of abuse, knowing its effects and harm. The majority of the adolescents had initiated sexual life, but with little knowledge. The academics have failed to learn from a new approach on the subject. The activity allowed understanding of the reality of adolescents, identifying their knowledge gaps and curing them through educational activities.

ANESTHETIC THERAPEUTIC STRATEGY FRONT OF POST-DURAL PUNCTURE HEADACHE IN PUERPERAL OF A PUBLIC HOSPITAL

Luciano Santos Sampaio, Ataul Moura Guimarães, Dennys Augusto de Novais Monteiro, Fabio Cruz de Souza, Fernando Henrique Costa Lemos, João Paulo de Oliveira Lima, Glayson Carlos Miranda Verner, Felipe Monteiro Diniz, Marcia Silva de Oliveira

The post-dural puncture headache (PDPH) despite presenting a very variable incidence among several authors, is a not uncommon complication in pregnant women submitted to conduction anesthesia (spinal, epidural puncture accompanied by accident). This is a complication that generates a disabling clinical condition, which can often influence the quality of the puerperal woman and her fetus. The PDPH is characterized by the emergence, in most cases, just the first 24 hours post-cesarean an orthostatic headache frame, holocranial or not, with or without changes related to cranial nerves (diplopia, blurred vision, nausea vomiting, etc.). Among the therapeutic strategies are conservative treatments and conducting an epidural blood-patch seal with counterpart, which is usually done when the first shows to be ineffective.

ACUTE APPENDICITIS AND RIGHT URETEROLITHIASIS, A CONCOMITANT AND MINIMALLY INVASIVE SURGICAL TREATMENT

Bruno Vilalva Mestrinho, Berthran Severo, Dennys Augusto de Novais Monteiro, Luciano Santos Sampaio, Ataul Moura Guimarães, Fabio Sousa Cruz, Fernando Henrique Costa Lemos, Marcia Silva de Oliveira

The clinical diagnosis of acute appendicitis presents false-positive and false-negative rates of approximately 20%. Many patients have questionable clinical and laboratory findings, making the diagnosis of appendicitis even more complicated. The most important diagnostic sign of ureterolithiasis is the direct visualization of the stone within the ureter. However, in some patients with ureterolithiasis stone visualization may be impaired due to stone small size or low attenuation, low amount of retroperitoneal fat or recent elimination of the stone. A mistake of appendicitis for ureteral stone is clinically rare when knowledgeable staff.

EXPLOSION IN A CHILD GLAN'S BY GUNSHOT: A REPORT OF SURGICAL CASE

Dennys Augusto de Novais Monteiro, Ataul Moura Guimarães, Bruna Viana Dias, Fabio Cruz de Souza, Fernando Henrique Costa Lemos, Guilherme Gonçalves Silva Pinto, Lídia Tocchio Melo, João Paulo de Oliveira Lima, Luciano Santos Sampaio, Marcia Silva de Oliveira, Bruno Vilalva Mestrinho

The high rates of violence and the easy access to guns in our society has put at risk of gunshot's injuries the civilian population. One of the most bizarre injuries, but not unusual, is the genitourinary system. We describe a case of penile lesion by caliber weapon 22 in a 9 years-old-young. The child had access to his gun father's, put in the waist causing accidental shooting. The patient underwent exploratory surgery to repair of the identified rupture.

DIVERSITY OF PATHOGENIC MICRO-ORGANISMS IN Collective TRANSPORT AND HANDRAILS OF ESCALATORS IN SHOPPING MALLS OF FEDERAL DISTRICT/DF, BRAZIL

Jefferson Aber Alves Araújo, Juliana Paiva Lins, Marcia Silva de Oliveira, Céfora Bezerra Souza, Brunna Christofori Stefani

Human systemic mechanism of immune response is evolutionarily adapted to handle various types of microorganisms and may develop antibodies to a particular pathogen. The failure or low of that system can be determinant for infection and microorganisms proliferation, which cause pathologies that may lead someone to death or to contaminate others. The contact between people implies a higher possibility of dissemination of those microorganisms, since a higher frequency of individuals in the same environment increases the dispersion of contaminants and the incidence of disease transmission. The diversity of environments which facilitate the spread of pathogenic microorganisms includes collective means of transport and stairways handrails in public places, where there is a direct contact from multiple people daily and some of them may be carrying biological agents and transmit them to others, facilitating the spread of these disease-causing microorganisms.

THE ROUTINE BIOMEDICAL PERFUSION AT THE SURGICAL CENTER

Jefferson Aber Alves Araújo, Céfora Bezerra Souza, Juliana Paiva Lins, Marcia Silva de Oliveira, Brunna Christofori Stefani

Among them there is one in vast growth: the extracorporeal perfusion, which is a method used to assist cardiovascular surgeries, heart, lung or liver transplantation and some types of tumors removals. Perfusion consists of maintaining the patient on artificial life support through specific equipment that replaces functions of the heart and lungs, oxygenating and pumping blood to the patient's body. So, the presence of biomedical perfusionist is of great importance to the proper conduct of those surgeries. Considering he is part of a multidisciplinary team, but his role is not yet fully known, we felt the need to present the profile of this professional, highlighting his functions in the operating room, his importance to the work of other professionals (physician, anesthesiologist) etc. This paper, at last, to emphasize the importance of biomedical perfusionist and his activities in the operating room against the multiprofessional team.

TECHNICAL SESSION – PW3

THE VISION OF THE STUDENT OF MEDICINE IN THE FIRST PERIOD BEFORE THE HOME VISIT

Mariana Queiroz Souza Pereira, Caroline Neiva Damasceno, Flávio Eduardo Ramos Azevedo, João Victor Barros Feitosa, Rafaella Silveira Camargo, Suellenn Kecya Couto Tenório, Wanessa Fernandes Veloso, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

Home visits make possible the implementation of the guidelines of the SUS of comprehensiveness, universality and equity. One of the goals of the home visit is to understand the patient as an individual, but inserted in their family context. Respecting, clarifying doubts, assessing the health, giving support, working with the interpersonal relationships and directing preventive care. It is clear that such visits bring many benefits to society. One of them is the increase of the bond between the health professionals and the community. The importance of an early contact of students of the basic cycle of the course of medicine with the community, in order to train doctors with more universal vision and humanist, with theoretical and practical knowledge about this subject, is presented as a report on experience of a group of medical students.

THE MEDICINE AND THE RELIGIOUS MANIFESTATIONS: A RELATIONSHIP THROUGH HISTORY

Eric Lima Mendonça do Nascimento, Gabriel Alves Barros Rocha, Taisy Rincon Siqueira, Wilson Martins Ribeiro, Adna Sandriele Oliveira de Lima Medeiros, Paulo Tubino, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

Religion and medicine always showed through the times a very intimate. Both are looking for the relief of suffering, help others, ways to explain the emergence of diseases or to seek a cure. The rise of Christianity to the religious reforms during the medieval period, significant changes have occurred in the course of medicine and its relationship with religion. The scientific approach and rational to deal with the religious explanations on the diseases was a milestone in the history of medicine. In counterpart, nowadays, it is necessary to understand the rites modern originated from religion and its social implications, making this the central objective of this work. Based on literature survey extensive, this work explores a summary about the scientific position in relation to religious manifestations and social, as well as its influences in human pathologies.

THE INFLUENCE OF SOCIOECONOMIC PATTERNS OF PRIMIPAROUS MOTHERS IN BREASTFEEDING SUCCESS

Eric Lima Mendonça do Nascimento, Adna Sandriele Oliveira de Lima Medeiros, Caio César Lima de Moura, Caio Medeiros de Oliveira, Andrea Lopes Ramires Kairala, Marcia Silva de Oliveira

The breastfeeding depends on factors of socioeconomic character. The aim of this study was to describe the influence of socioeconomic patterns in breastfeeding in primiparae. The study was quantitative exploratory. Data Collection semi-structured interviews, applied the primiparous mothers, who were receiving prenatal care in the BHU-Candlemas. Of the 20 mothers, 70% are between 20-30 years, of these, 78.6% are currently enrolled or attended high school and 35.7% enrolled in higher education. Of the total, 50% are married and living with family. 55% Work and 45% are dependent on their parents or combine. The family income of 3 to 4 minimum wage. All live in brick houses. The breastfeeding prevailed among single mothers who work with higher level of schooling, this being accomplished by 13.2 months non-exclusive and 4.2 months exclusively. Mothers in adulthood, good instructional level, sustained familiarly, financial condition stable, working and keeps on average 4.2 months of AME.

THE INTERNATIONAL AGREEMENTS AND THE RIGHT TO SOCIAL SECURITY

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala

The objective of this work was to study the International Treaties and the Right to Social Security. This was a descriptive study with a qualitative approach in relation to provision of social security benefits established by International Agreements on Social Security, in which we analyzed 13 publications about the topic. Brief conceptual revisions of international agreements, taxpayers' rights and not the taxpayers' Social Security, looking for defending the view that the social rights, needs to be definitely recognized as a true right able to bind the actions of the Public Authorities, especially when their violation resulting from serious damage to human dignity, it is the individual or collective. It is concluded that in the present study, that measures are implemented in a broader context for enforcement of the right of the person and the recognition of individual protection which cannot be denied to social rights in general.

THE GAME AND ITS PURPOSE: CONTENT OF PHYSICAL EDUCATION OR METHODOLOGICAL RESOURCE EDUCATION

Elineide dos Santos de Oliveira, Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira

All full papers must include an Abstract with the submission. The Abstract and Index Terms text should be 10 pt. Times New Roman italic, full justified and contained without one paragraph. Begin the Abstract with the word Abstract - in Times New Roman italic Bold text, only the word Abstract should be bold. Do not indent. Use a long dash after the words "Abstract" and "Index Terms". Do not cite references in the abstract. The abstract should be maximum 150 words (obligatory); this example abstract is 140 words. The maximum number of pages is five. No matter what is the language of the paper the abstract has to be in English. A copy of this abstract will be included in the conference program book so please follow these guidelines so every presentation will have an abstract in the program book.

THE HEALTH AS A FUNDAMENTAL RIGHT IN THE STATUTE OF THE ELDERLY

Antonio da Costa Cardoso Neto, Ana Maria Moraes Cardoso, Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala

The objective of this work was to study the Constitutional Right to Health and the Law of the elderly, the positive and negative aspects of the Elderly. This was a descriptive qualitative study on the relationship guarantees the rights and benefits established by the Brazilian Constitution and the Statute of the Elderly, which examined 30 publications on the subject. Are brief reviews the constitutional right to health and guaranteed to the old law and seeks to defend the view that social rights need to be recognized and the policies for the elderly population must promote solidarity between generations. It concludes with the present study that measures are implemented to realization of the right of the elderly respecting the actions of other population groups.

RELEVANCE OF EDUCATION AND KNOWLEDGE OF BIOETHICS IN HEALTH SCIENCES

Marcia Silva de Oliveira, Andrea Lopes Ramires Kairala, Antonio da Costa Cardoso Neto, Vilma Dias da Costa, Pâmara Santos Marques

The Bioethics emerges as a new expression of Humanism, that is, as a new form of exploitation and protection of the Human Being. While also studying the problems that this progress raises both the micro level social either at the level of global society and the impact that this progress has on society and its system of values. It is an exchange of knowledge that sees life in an ethical perspective questions the sense of progress when confronted with the dignity of the person. In fact the progress of scientific knowledge is a good thing. If we do not have this perspective, scientific progress can contain the germ of a internal corrosion that will certainly detract from the man himself.

STUDY OF IRON DEFICIENCY ANEMIA AND BLOOD TYPING IN CHILDREN UP TO FIVE YEARS OF AGE, ENROLLED IN A PUBLIC KINDERGARTEN IN FEDERAL DISTRICT/BRAZIL

Brunna Christofori Stefani, Juliana Paiva Lins, Marcia Silva de Oliveira, Jefferson Aber Alves Araújo, Céfora Bezerra Souza

This analytical study's main function is the collection of data for verification of the clinical picture of Iron Deficiency Anemia and Blood Typing analysis through the ABO/Rh system in children under five years old who attend public day care centers in the Federal District (DF) /Brazil. The Iron Deficiency Anemia is a poor nutritional status in iron and other blood components, such as vitamin B12 and folic acid. It affects much of the world population, most common in children, especially those with less than five years and pregnant women. The ABO/Rh system was discovered in 1901 by Landsteiner. It is critical in the case of blood transfusion requirements. Erythrocytes have in their layer a component called antigen. They are essential to confirm the blood type.

ECOTOXICOLOGICAL TESTS WITH THE USE OF LICHENS AS BIOINDICATORS OF AIR IN THE MONUMENTAL AXIS OF BRASILIA

*Amanda Silva Rocha, Juliana Paiva Lins, Dênis Xavier da Silva, Pollyana Lorrany Ribeiro dos Santos,
Welton de Assunção e Silva Júnior, Marcia Silva de Oliveira, Darlles Bruno de Sousa Pereira*

The questions addressed in this project considers the current in Brazilian-DF air condition, and the ecotoxicological effects into account the increase of the vehicle fleet in the city to fetch data on possible toxic gases, metallic pollutants, highlighted automotive vehicles. Thus, a region with high vehicle traffic in Brazilian will be marked specific points for date collection, relying on the involvement of biomedicine students from Universidade Paulista – UNIP of Brazilian. Ecotoxicological testing techniques will be used with use of lichens bioindicators for biomonitoring of selected points for research and analysis of effects gases in the photobionts. In this way, you can raise speculation about the metal pollution effects, and the involvement of damage in humans exposed to these contaminants.

Author Index

A

Adna Sandriele Oliveira de Lima Medeiros, 47, 48, 49, 50, 53
Adriana Saraiva dos Reis, 41
Adriano de Souza Marques, 38
Ailana Rodrigues Lira, 41
Alexandre Botari, 46
Alexandre C. Almeida, 39
Altair Bertonha, 46
Amanda Silva Rocha, 55
Ana Alves, 37
Ana Carolina R. de Castro, 30
Ana Júlia Ferreira Rocha, 35
Ana Lúcia Torres Serôa da Motta, 46
Ana Margarida Mascarenhas, 28
Ana Maria Menezes Neiva Eulálio Amorim, 41
Ana Maria Moraes Cardoso, 43, 44, 53, 54
Ana Paula Silva, 28
Anabela Gonçalves Paiva, 29
André E. Machado, 30
André Jesus Perçato, 45
André Luiz de Lima Reda, 35
Andrea Lopes Ramires Kairala, 47, 48, 49, 50, 52, 53, 54
Aníbal Costa, 37
Annatália Meneses de Amorim Gomes, 41
Antonio da Costa Cardoso Neto, 43, 44, 48, 49, 53, 54
António J. C. Marinho, 36
Antonio Joaquim da Silva, 41
Aristides Faria Lopes dos Santos, 30
Ataul Moura Guimarães, 51
Augusto Etchegaray Jr, 42
Augusto Fernando Souza de Oliveira, 43, 44

B

Barbara C. A. da Rocha, 30
Berthran Severo, 51
Bianca Dall Gallo Marion, 38
Bruna Viana Dias, 51
Brunna Christofori Stefani, 52, 54
Bruno Carvalho, 30
Bruno Vilalva Mestrinho, 51

C

C. M. Barrett, 29
Caio César Lima de Moura, 47, 48, 50, 53
Caio dos Santos Fogaça, 47, 48, 49, 50
Caio Medeiros de Oliveira, 47, 48, 50, 53
Caio Moura, 47, 50
Camila Carlos Seixas, 47, 48, 49, 50
Camila Seixas, 47, 50
Camino López, 39
Carolina Cione Coppi, 33

Caroline Dominguez, 29
Caroline Neiva Damasceno, 52
Cássia Maria Bonifácio, 42
Cassio Nascimento Duarte, 41
Céfora Bezerra Souza, 52, 54
Célia Regina Granhen Tavares, 42
Cláudia do Rosário Vaz Morgado, 31
Claudiane dos Santos Ferreira, 43
Claudiner Mendes de Seixas, 34
Claudio da Rocha Brito, 27
Cleber Silva e Silva, 43, 44
Cristiana Fernandes Rodrigues, 28
Cristiane Maria Ferraz Damasceno Moura Fé, 41
Cristiane Prado Marin, 34
Cristina Filipa Félix de Sá, 28
Daniel Temponi Lebre, 40

D

Daniela S. Santos, 32
Danyelle Nóbrega de Farias, 35
Darlles Bruno de Sousa Pereira, 55
Davis Castro dos Santos, 43, 44
Dênis Xavier da Silva, 55
Dennys Augusto de Novais Monteiro, 51
Derival Pires dos Santos, 40
Diego Leonardo Salvador, 46
Diva Lea Batista da Silva, 38

E

Edmilson Roberto Braga, 32
Edna Maria Barradas da Silva, 44
Eduard Belyaev, 29
Eduardo Juan Soriano Sierra, 42
Elaine Arantes Jardim Martins, 40
Elineide dos Santos de Oliveira, 53
Elizabeth F. de Souza, 42
Eric Lima Mendonça do Nascimento, 53

F

Fabio Cruz de Souza, 51
Fabio Sousa Cruz, 51
Fabrício Napoleão Andrade, 41
Fátima C. de Oliveira, 30
Felipe Aparecido Alexandre, 39
Felipe Monteiro Diniz, 51
Fernanda Rodrigues, 37
Fernando Henrique Costa Lemos, 51
Flávio Eduardo Ramos Azevedo, 52
Francieli Sant'ana Marcatto, 45
Francisca Carla Silva de Oliveira, 41
Francisco Reis da Silva, 36

G

Gabriel Alves Barros Rocha, 53
Geiso Rafael Oliveira, 43, 44
Gennady Mavrin, 29
Geraldo Eduardo Guedes de Brito, 35
Gilberto Teixeira da Silva, 35
Giuliani do Prado, 46
Glaysen Carlos Miranda Verner, 51
Guilherme Gonçalves Silva Pinto, 51
Guilherme M. Gonçalves, 30, 32
Guilhermina Castro Silva, 41
Gustavo Gomes Laurindo, 49

H

Helena Miho Shihomatsu, 40
Helena Paula Guerra dos Santos, 41
Hélio Silveira, 45
Herik Zednik, 39
Higor Dalbon da Silva, 34

I

Ilnar Suleimanov, 29
Ingrid Davis da Silva Gadelha, 35
Ioli da Silva Piauilino Ferreira, 41
Irene Oliveira, 27
Irina Makarova, 29
Irineu Jorger de Souza, 44

J

J. Sheng, 29
Jacio L. da Silva Pereira, 40
Janaina Conversani Botari, 46
Janeth Vieira da Silva, 29
Jefferson Aber Alves Araújo, 52, 54
João Francisco Escobedo, 38
João Paulo Barbosa de Jesus, 47, 48, 49, 50
João Paulo de Oliveira Lima, 51
João Paulo Lima, 51
João Pedro Couto, 36, 37
João Victor Barros Feitosa, 52
Johny da Silva Oliveira, 43, 44
José Aparecido Silva de Queiroz, 38, 39
José Kairala Filho, 48
Jossivaldo de Carvalho Pacheco, 41
Joyce Araújo Máximo da Silva, 34
Juan Paulo Robles Balestero, 34
Juliana C. Batista, 42
Juliana Paiva Lins, 52, 54, 55
Jussara Izabel Corrêa Cabral, 28

K

Karenina Cardoso Matos, 41
Karinne Cardoso Muniz, 47, 50
Kátia Suelly Queiroz Silva Ribeiro, 35

Katia Tannous, 33
Klaus Martin Fischer, 31

L

Leticia Barroso, 42
Liane M. R. Tarouco, 39
Lídia Tocchio Melo, 51
Lorran Santana, 30
Luana Nogueira Lima, 47, 48, 49, 50
Lúcia da Silva Vilarinho, 41
Luciana Moura Mendes, 35
Luciano Santos Sampaio, 51
Luís M. S. Pimenta, 36
Luís M. Santos, 36, 37
Luís P. Marques, 36, 37
Luiz Pinheiro da Guia, 46

M

Magda A. Salgueiro Duro, 35
Manoel Gonçalves Filho, 40
Manoel Júlio Albuquerque Filho, 43
Manuel Guedes, 37
Marcelo M. Seckler, 45
Marcelo Sampaio Alencar, 33
Marcelo Silva, 30
Marcia Silva de Oliveira, 44, 47, 48, 49, 50, 51, 52, 53, 54, 55
Marcílio Garcia Ferreira, 43
Marcio Vieira Rodrigues, 39
Marco Antonio Rossi, 34
Marcos José de Barros, 40
Margarida Correia Marques, 27, 28, 29
Maria Antonina Magalhães Coelho, 34
Maria Aparecida Faustino Pires, 40
Maria Célia de Oliveira, 40
Mariana Cintra Elias, 34
Mariana Queiroz Souza Pereira, 52
Marielle Feilstrecker, 31
Marycel Elena Barboza Cotrim, 40
Matheus Veiga Mansano, 35
Mauro Sérgio Braga, 30, 32
Melany M. Ciampi, 27
Murilo Borges Silva, 45

N

Nasser Mahmoud Hasan, 38
Natalia Ramires Kairala, 47, 48, 50
Nícia Bezerra Leite, 41
Nuria Fernandez Castro, 34

O

Orlando R. Baiocchi, 29, 33
Osmar F. Gomes, 32
Oswaldo Tarelho Junior, 42

P

Pâmera Santos Marques, 48, 49, 54
Paulo Henrique Cruz Pereira, 33
Paulo Tubino, 53
Pedro José da Silva, 32, 33
Pedro M. L. Salgado, 36
Pollyana Lorrany Ribeiro dos Santos, 55

R

R. Landowski, 29
Rafael Oliveira Agnholetto, 46
Rafaella Silveira Camargo, 52
Raniere Bezerra de Araújo, 41
Raquel de Paula Soares, 31
Rayanne Murras, 30
Renata Antunes da Cruz, 30
Renata Cristiane Fusverk da Silva, 42
Renata Kelly Mendes, 42
Renata Leon Paula de Souza, 35
Renato Marchesini, 30
Ricardo Rodrigues Dias de Lima, 45
Rochelle Hermenegilda Nunes Nogueira, 41
Rodrigo Allegretti Artioli, 33
Rodrigo C. Borges, 40
Rogério Moraes Carneiro, 45
Romeu Vicente, 37
Ronei Marcos de Moraes, 31, 35
Ruben M. Crivelari, 35

S

Sabrinny Pedroza Martins, 47, 49
Sílvia Maria Santana Andrade Lima, 41
Simone de Fátima Pinheiro Pereira, 43, 44
Simone Zappe Fernandes, 31
Suellenn Kecya Couto Tenório, 52

T

Taisy Rincon Siqueira, 48, 50, 53
Tâmira T. M. Rodrigues, 45
Tânia Mara Rizzat Salvador, 46
Thaiane de Castro Mello, 30

V

Vadim Mavrin, 29
Vadson Bastos do Carmo, 33, 38
Vânia Seixas, 27
Vera Lucia F. Rezende, 42
Victor F. A. Barros, 27, 45
Vilma Dias da Costa, 48, 49, 54

W

Walter Borysow, 32
Walter J. Salcedo, 30, 32
Wanessa Fernandes Veloso, 52
Welton de Assunção e Silva Júnior, 55
Wenderson Nascimento Lopes, 39
Wilson Martins Ribeiro, 53
Wilza Gomes Reis Lopes, 41

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