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The Executive Phase of Flood Water Control Plan of Kangavar City, Kermanshah Province, Iran

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ABSTRACT

The importance of watershed management can be specified in its goals vista. Watershed management can be defined in managing the watershed basins in order to maintain, revival and principled utilization of them. The floodwater control plan of Kangavar urban area was being studied by experts in watershed management study office of construction organization of Kermanshah province due to its special priority. Briefly, this plan was performed in two primary parts including base studies and preparing executive plan. Base studies were done by using topography map, statistics, necessary information and field surveys and the executive plan was being created by using general conclusion of base studies, aerial photos and field control. The considerable tip here which is necessary to mention is the close contribution of related offices such as: natural resources, municipality, government, agriculture and environment office to the construction organization in different executive steps of plans and the most important of all is to maintain them.

Keywords: *Executive phase, floodwater control, Kangavar*

INTRODUCTION

Hydrology is a science which analyzes and talks about water appearance, movement and its specifications on the ground and its relation with environment; precise hydrologic studies are obligatory while creating the plans of water resources utilization, predicting overflowing, maintaining water floods, dam construction, irrigation and drainage installations. Dimensions and safety grades of installations and proper utilization of them is not only dependent on flow rate average, rather the (Maximum and minimum) flow rates will have definite impacts on them and this is natural that in watershed maintaining projects, this is the maximum level of flow rate which always plays the primary role in creation of water floods and its further damages; Here in this research due to lack of access to the sufficient statistics and information, the maximum flow rate is being calculated by doing experimental studies, statistics and possibilities method.

This area is located on the east of Kermanshah province at 100 kilometers far from the east part of province and in the middle of Kermanshah-Hamedan road.

This area as a small plain which is being surrounded by rather low heights, is located between the 56,47 and 59,49 geographical longitude and 32,34 and 30,34 northern geographical latitudes. The climate of this region is semi-dry and cold; due to this fact, there is rather high level of precipitation which leads to erosion in the region. In a way that piles of sediments enter the plain and region water ways.

The highest height point of the region is 1680 meters, its lowest height equals to 1470 meters and it is 1425 hectares vast.

The Calculation of Length and Slope of the Primary Water Way

The main river starts from the height of 1650 meters and on the height of 1480 meters it being poured to another main river with 1.5 meters of length.

Since the destruction power of the rivers has direct dependency on water stream speed and it is also dependent on the river slope, being aware of the different points slope can give a clear image from destruction power of the rivers. the general slope of a river is consisted of three separate parts:

1. The head of the rivers which has steep slope and high speed of water stream. The river beds are continuously being erased in these parts.
2. The middle part which has lower size of slope than the head part. Here mostly subsidiary branches link to the rivers and water flow rate increases.
3. Downstream part which allocates lowest slope to its self.

Non Pure Slope

Non pure slope is being defined by height difference between two initial points of exit place and the end of its highest point to the distance length between two points.

$\bar{S}$ = Average river slope by percentage × 10^{-3} $\bar{S} = \frac{AH}{L}$

AH= The height difference from sea surface and between two points, start of main water way and exit point of basin in meters

L= water way length in kilometers

Pure Slope

Pure slope is being defined by tangent of a triangle angle which its surface equals to the surface under the longitudinal curve of the river and its base equals to total river length.

Which in it:

$$tg\alpha = \frac{AP}{L}$$

AP= The real surface under profile in m^2

L= Main water way length in meters

Which amounts of non-pure slope, average weighing and pure slope of main river by order are 3.3,5.82 and 2.45

Slope Study

Slope is the tangent of an angle which ground surface makes with a horizontal surface; as the matter of fact the difference ratio between two points in nature to the horizontal distance between them two is called as their slope. The watershed basin slope has great impact on hydrologic reaction of basins. The level of surficial stream after precipitations and water flood volume and also soil arousal in a steep sloped area is much more than ones with lower slope.

Analysing Topographic Condition

In order to study about height and surface and also for gathering climate data on various levels of height such as isohyets and isothermals, topography map (hypsometric) is being used. The height of basin is impactful on amount and type of precipitation, heat level and its changes, amount of evaporation and sweating, solar radiation intensity and generally in region weather and along with that in soil development formation, type and density of vegetation.

Therefore, knowing the distribution method of surface with height can considerably be helpful in this case. In Kangavar watershed basin this operation was done by assistance of topography maps 1:50.000, in the way which 100 meters long align lines are exported from topography maps.

In this area height is expanded from 1470 meters high to 1680

Here the highest altitude level is 1500-1600 meters with 44% of total portion. The vastness of this category equals to 627 hectares. The least occupied surface represents 1500 meters high altitude level with 25.54% of total portion.

Concentration Time Calculation

Concentration time is a period of time which forest water drop needs to reach concentration point (basin exit).

Concentration time is dependent on basin physiographic coordinates such as surface, shape, length and water ways slope, surficial uneven, type, density and vegetation, type and depth of soil and etc.

Evaluation of flood volume, hydrograph shape, surficial streams, delay and peak time are the most important usage of concentration time which can be concluded by experimental methods especially logical one.

Also, opting design rainfall duration from the aspect of statistical analysis of intensity data, duration is dependent on basin concentration time. Concentration time of design rainfall should be considered greater than concentration time because, it will be decreased by incensement of rainfall duration. So, usually flood flow rate decreases and vice versa; if design rainfall duration be smaller than concentration time, the rainfall will be stopped and flood intensity will also get reduced before the forest drops take themselves to the concentration point. So, their most critical time period is concentration time.

In order to evaluate concentration time, Kirpich formula is being used that:

$$Tc = 0.0003\ L^{.77}.\ S^{-0.385}$$

Which in it:

Tc= concentration time in hours

L= longest distance basin goes to reach external estuary in meters

S= Main water way average slope in meters which the concentration time of this basin is 0.8 hour or 48 minutes.

Meteorology

Being aware of each region climate and weather and analyzing its important parameters such as wind, precipitation, temperature, relative humidity, frost and etc. are necessary in order to study and every kind of developmental and agricultural planning.

Specification, Type and Length of Statistics and Density of the Region Meteorology State

Only synoptic and climatology station of Kangavar city were being used in the region climatic specification analysis and the reason was low area of the region. It is necessary to mention that initially this city station type was climatologic and since 1366 it was being converted to synoptically one; so, by summing up the two stations statistics, climatic specification of the region is being analyzed. The base time for analyzing precipitations was the year1354 and for other climatic parameters the year1355 was being considered as the base.

From the point of view of stations density and considering low range of the area and based on quanta consulting engineer's idea in seamless study of Iran meteorological network that have mentioned the average of pluviometer stations density as170 to600 square kilometers and the distance between two stations as 13 to 25 kilometers. This city station is efficient enough in order to analyses the climate of this region. And there is no need to use abutting stations. The only station is being used to study evaporation parameter, is the vaporization measurement station of power ministry in Polchehr.

Weather and Climatic Condition

Generally, this studied area and other ones around it from the climatic condition point of view is being affected by Mediterranean systems enters Iran from the west part. At the heights, these systems meet south-west streams and it leads to an ascension and clouds will be increased; as the result at these heights precipitations are more in comparison to most of other country parts. These precipitations are the cause of creation of Iran western parts forests. Precipitation in cold seasons in these areas especially at heights mostly is as snowfall. Sometimes in summers due to reinforce mentions of low pressure masses at cold levels of earth, temperature in some western parts of country may reach 40 centigrade degrees or more; whereas, in winter due to permeation of cold air masses, there is possibility of temperature reduction to 30 to 35 centigrade degrees under zero which this phenomenon is completely clear to see in Hamedan while there is less possibility of this to happen in Kermanshah and the case studied area.

Drought and Wetness Periods

In analysis of Kangavar precipitation parameter, its base time was the year 1354-70 by duration of 17 years that has the sufficient efficiency. Also, for assurance of statistical matchless with Sahneh pluviometer station that its precipitation period equals to Kangavar station, solidarity coefficient was being calculated which the amount 0.82 was resulted from it that is a reliable coefficient.

THE MAXIMUM PRECIPITATION IN 24 HOURS

This parameter specifies maximum precipitation in 24 hours for one month and in order to analyze that, observed maximums in statistical period was being studied then maximum amount of precipitation of Kangavar in 24 hours was being achieved; Its results are provided beneath in the table:

200	100	40	20	10	5	2	Returning period to the station/ year
56.5	55	52.5	50.5	48.2	45.4	40	Kangavar

Maximum precipitation in 24 hours in various returning in millimeters

Precipitation Fluctuations Coefficient

In order to analyze precipitation fluctuations and realizing precipitation deviation rate from the average limit, precipitation fluctuations coefficient is used and it is being mentioned in percentage and the amount of its percentage indicates precipitation deviation rate from the average limit which is used for different planning purposes.

$$CV = \frac{S}{\bar{X}} \times 100$$

CV= Fluctuation coefficient

S= Deviation from data criterion

$\bar{X}$= Dates average

Calculation of Precipitation fluctuations coefficient for Kangavar:

Fluctuation coefficient: $CV = \frac{87.6}{394.1} = 0.222$

Fluctuation coefficient percentage: CV= 0.222×100= 22.2

Kangavar amount for mentioned factor is 22.2 which shows

Annual precipitation rate ±22.2 is fluctuating from the average limit, as 394.1±87.5

Evaporation

Potential evaporation (evaporation from free surface of water): In the case studied area there is no evaporation measurement station to use its statistics while out of the region there are some stations available including: Firuzabad, Ayene Nahavand, Bahadorbeik and Polchehr. The closest station to the desired area is Firuzabad evaporation measurement station which has the longest statistics in comparison to other stations. This station height equals to 1520 meters from the sea surface and because it is in equality in height with the average height of region. So, this station statistic is being used. As the descriptive factor for evaporation rate from the basin surface.

Firuzabad station has been established in 1346 that there are statistics available from this station for 10 years which this is two years less than chosen statistical period (from 1344-45 to 1355-56). Also, in most of the years, the statistics of the winter is not included due to the frost and the statistics of the year 1351-52 has nine months of shortage and the year 1352-53 have five months of shortage that these two years was being accomplished by the solidarity between Firuzabad and Ayene Nahavand stations. The statistics of frosty season due to reaching the lowest amount of evaporation possible in that time, the evaporation amount from the basin surface for December is 40, for January and February each one is 30 and finally for March is 40 millimeters.

Calculation of Evaporation and Area Annual Transpiration in Aquatic Balanced Way by Torek Method

This method is based on temperature level and annual precipitation; As formerly average annual precipitation of the region was analyzed, it is 394.1 millimeters and average temperature level is also 13.7 centigrade degrees.

By inserting the above numbers in Torek formula, the real amount of yearly evaporation and transpiration is 339.4 millimeters or 86 percent of total annual precipitation amount.

Average annual precipitation in millimeters P= 394.1

Average annual heat: T= 13.7 centigrade degrees.

$$L = 300 + 25T + \%5T^3 \qquad Er = \frac{P}{\sqrt{0/1 + \frac{P^2}{L^2}}}$$

L = 771.06

Er = The actual evaporation and transpiration of area

$$Er = \frac{394/1}{\sqrt{0/9 + \frac{394/1^2}{771/06^2}}}$$

P= Average annual precipitation in millimeters

T= annual heat level mean in centigrade degrees

$$Er = \frac{394/1}{\sqrt{1/612}} = 339/4$$

According to The actual evaporation and transpiration of area formula of Torek method, it is estimated as 339.4 millimeters. The final result of formula indicates that actual evaporation and transpiration of area, is equals to 86 percent of total yearly precipitation.

Air Temperature

Air temperature is another effective parameter in a region climate; as the definition temperature means measuring thermal energy which is possible to being measured in soil and air by measuring it in different times in a day. This parameter can be discussed and measured in three parts as daily temperature, monthly temperature and annual temperature.

Dryness Level

In order to specify kangavar area dryness level, Konrad and Johnson formulas are being used.

Konrad Formula

$$K = 1/7 \frac{A}{Sin\,(a+10)} - 14$$

According to this formula:

$$K = \frac{1/7 \times 26}{0/694} - 14 = 49/6$$

K= Dryness level

A= Annual temperature difference

Sin a= Geographical latitude sinus which is exported from special tables.

Considering that K equals to one hundred at driest points and at wettest points it is equals to zero, Kangavar has average dryness condition.

Johnson Formula:

$$k = \frac{1/6(A)}{Sina} - 14$$

In this formula:

$$k = \frac{1/6 \times 26}{0/559} - 14 = 60/4$$

K= Dryness index

A= Annual temperature difference

Sin a= Geographic latitude sinus

Thus, Kangavar and its surroundings are in almost extreme average dryness condition according to Johnson formula. (Using above formula for Asia continent has given number 53.)

Relative Humidity

Relative humidity actually is ratio of absolute humidity amount existing in each of air masses with specified temperature, to the maximum absolute humidity with the same air mass and the same temperature.

This parameter is being calculated by the formula mentioned beneath and typically it is defined in percent.

$$U = \frac{\text{water vapour pressure}}{\text{condensed vapour pressure in the same heat level}} \times 100 = \frac{e}{e_s} \times 100$$

In analyzing relative humidity amount of Kangavar, the information’s and statistics of Kangavar climatology station are being used and minimum average and relative humidity average are being analyzed.

Wind

Due to inappropriate statistics of wind direction, speed and frequency, it is being refused to discuss about the topic and also drawing the region windrows.

Geological Totality

Kermanshah province is tectonically so diverse; in fact, it is included in many types of geological zones. Because of being located in a special region and at the median or the incidence point of Saudi Arabia and Iran plates, this province is under forces of pressure and the region is tectonically overactive and due to these compressional forces, huge wrinkles and great faults can be seen. Zagros mountain chain which is the best sample of tectonic activities of the region that is extended from north-west to south-east which the middle part is related to Kermanshah province. Appearance of this high and giant mountain chain backs to ending of

Mesozoic era which can be resulted by young alpine phases activity. This orogeny could effect on other points so much by its massive force which Alborz is another sample of this force appalment.

Geomorphologic studies which analyses surficial ground topography, gives us important information. These studies have a considerable efficiency in specifying various watershed management operations at different points of the area.

In geomorphologic divisions of area, we eventually reach faces.

Analysis of faces plays a great role in specifying work units in order to doing executive works; as any of executive operations would be scientifically worthless without considering geomorphology.

Here it is refused to interpret and conclude geomorphologic maps and this responsibility is shifted on the executive operations designer. The number of resulted faces of these studies are nineteen.

To implement geomorphologic studies, area borders have been highlighted on topography map $\frac{1}{50000}$ and then units and types have been separated by geologic informations. Specifying units and types based on geologic map $\frac{1}{250000}$ have been done by changing scale to $\frac{1}{50000}$. On next step in different types, faces have been specified. These faces have been created by topography maps $\frac{1}{50000}$ and slope map $\frac{1}{50000}$. inorder to specify various facies, topography map $\frac{1}{50000}$,slope map in the scale of $\frac{1}{50000}$ and aerial photos in the scale of $\frac{1}{20000}$ have been used. Also slope direction has been considered and field observation has been done. Eventually, the geomorphologic map of Kangavar area has been created that shows different faces in the area.

Arousal System

The arousal system of kangavar watershed, based on weather dependent arousal systems is being classified in dry and semi-dry regions arousal system group. In Kangavar area, chemical weathering is minor and can be underestimated. The weathering type here is mechanical. The area altitudes are covered by snow for a long time. Spring rainfalls on snow masses can lead to flowing water which brings extreme erosion caused by water. Also precipitations that are only as rainfalls, are different in intensity that will result in some erosions. Human immoderate interference specially by grazing livestock irregularly has intensified water caused erosion which is abnormal and the soil resulted from erosion, relatively has been washed.

Sediment Level Estimation and Classification of Sedimentation Level

For estimation of sediment level in this method, 9 factors are being used such as: geology, soil, water, air, topography, land coverage, lip land and river erosion which all have been described in base studies section. These factors have been described in a way that each have been analyzed independently from others while they maintain their role in sediment production.

Tectonic Condition

The studied region from the aspect of tectonics and lithology are all being located in Sanandaj-Sirjan zone. this zone as a strip is located from west to the south of country. This zone is contiguous to Zagros and due to similarity in placement or even some of lithological materials, they can be taken falsely.

Lithology and Stratigraphy Condition

As it was being mentioned in study method section, the only standard and available geologic map of region was the map $\frac{1}{250000}$ that we converted it to the scale of $\frac{1}{50000}$ and considering that the map $\frac{1}{50000}$ is not that much reliable, and also its conversion would make much trouble, so the lithological studies was done on this base. Due to lack of the region aerial photos, the preparatory created map has been being matched with earth for final correction and the ambiguous and unknown subjects were being specified. After that the prepared map was being matched the base topography map with scale of $\frac{1}{50000}$ and consequently geology map was being created.

According to the lithology map, it is being realized that studied region is being consisted from two geological eras that includes in forth era (Quaternary) and second era (Mesozoic). so it can be mentioned that is geologically young but many happenings have occurred to the uneven parts which can be observed by faults, anticlines and synclines existing in the region.

Sediment Level Estimation and Classification of Sedimentation Level

For estimation of sediment level in this method, 9 factors are being used such as: geology, soil, water, air, topography, land coverage, lip land and river erosion.

Soil Erosion and Sediment Production in Watershed Level

Previously, the entire effective parameters in soil erosion and sediment production were being assessed and importance and role of each one in sedimentation was being mentioned.

Now based on mentioned parameters, annual sediment production has been arranged by using nomogram that production of area sediment yield has been calculated as 296 cubic meters in square kilometers in a year. This level of erosion from the qualitative aspect is being placed in class 3 which has average condition.

REFERENCES

[1] Ostad-Ali-Askari, K., Shayannejad, M. 2015, Study of sensitivity of Autumnal wheat to under irrigation in Shahrekord, Shahrekord City, Iran. International Journal of Agriculture and Crop Sciences, 8 (4), 602-605.

[2] Shayannejad, M., Akbari, N., Ostad-Ali-Askari, K. 2015, Study of modifications of the river physical specifications on muskingum coefficients, through employment of genetic algorithm. International Journal of Development Research, 5(3), 3782-3785.

[3] Ostad-Ali-Askari, K., Shayannejad, M. 2015, The Reviews of Einstein's Equation of Logarithmic Distribution Platform and the Process of Changes in the Speed Range of the Karkheh River, Khuzestan province, Iran. International Journal of Development Research, 5(3), 3786-3790.

[4] Ostad-Ali-Askari, K., Shayannejad, M., Ghorbanizadee-Kharazi, H. 2015, Assessment of artificial neural network performance and exponential regression in prediction of effective rainfall, International Journal of Development Research, 5(3),3791-3794.

[5] Shayannejad, M. Akbari, N. and Ostad-Ali-Askari, K. 2015, Determination of the nonlinear Muskingum model coefficients using genetic algorithm and numerical solution of the continuity. Int. J. of Science: Basic and Applied Research, 21(1),1-14.

[6] Ostad-Ali-Askari, K., Shayannejad, M. 2015, The Study of Mixture Design for Foam Bitumen and the Polymeric and Oil Materials Function in Loose Soils Consolidation. Journal of Civil Engineering Research, 5(2), 39-44. DOI: 10.5923/j.jce.20150502.04

[7] Sayedipour, M., Ostad-Ali-Askari, K., Shayannejad, M. 2015, Recovery of Run off of the Sewage Refinery, a Factor for Balancing the Isfahan-Borkhar Plain Water Table in Drought Crisis Situation in Isfahan Province-Iran. American Journal of Environmental Engineering, 5(2): 43-46. DOI: 10.5923/j.ajee.20150502.02

[8] Ostad-Ali-Askari, K., Shayannejad, M. 2015, Developing an Optimal Design Model of Furrow Irrigation Based on the Minimum Cost and Maximum Irrigation Efficiency. International Bulletin of Water Resources & Development, 3(2), 18-23.

[9] Ostad-Ali-Askari K. Groundwater. Horoufchin publisher, First Edition, 2015. ISBN: 978-600-7419-33-5. Isfahan, Iran.

[10] Shayannejad M, Ostad-Ali-Askari K. Modeling of solute movement in groundwater. Kankash publisher. First edition, 2015. ISBN: 978-600-136-256-9. Isfahan, Iran.

[11] Shayannejad M, Ostad-Ali-Askari K. Optimization and its application in water resources management. Kankash publisher. First edition, 2015. ISBN: 978-600-136-248-4. Isfahan, Iran.

[12] Ostad-Ali-Askari K. Nitrate pollution in groundwater. Horoufchin publisher, First Edition, 2015. ISBN: 978-600-7419-23-6. Isfahan, Iran.

[13] Ostad-Ali-Askari, K., Shayannejad, M. 2015, Presenting a Mathematical Model for Estimating the Deep Percolation Due to Irrigation. International Journal of Hydraulic Engineering, 4(1), 17-21. DOI: 10.5923/j.ijhe.20150401.03.

[14] Ostad-Ali-Askari, K., Shayannejad, M. 2015, Usage of rockfill dams in the HEC-RAS software for the purpose of controlling floods. American Journal of Fluid Dynamics, 5(1), 23-29. DOI: 10.5923/j.ajfd.20150501.03.

[15] Ostad-Ali- Askari, K., Shayannejad, M. 2015, The effect of heterogeneity due to inappropriate tillage on water advance and recession in furrow irrigation. Journal of Agricultural Science, 7(6), 127-136.

[16] Shayannejad, M., Ostad-Ali-Askari, K. 2015, Effects of magnetized municipal effluent on some chemical properties of soil in furrow irrigation. International Journal of Agriculture and Crop Sciences, 8(3), 482-489.

[17] Ostad-Ali-Askari K, Shayannejad M, Golabchian M. Numerical methods in groundwater. Kankash publisher. First edition, 2015. ISBN: 978-600-136-276-7. Isfahan, Iran.

[18] Ostad-Ali-Askari, K., Shayannejad, M. 2015, Optimal design of pressurized irrigation laterals installed on sloping land. International Journal of Agriculture and Crop Sciences, ISSN 2227-670X. 8(5), 792-797.

[19] Ostad-Ali-Askari K, Shayannejad M, Eslamian S, Jahangiri A.K, Shabani A.H, Environmental Hydraulics of Open Channel Flows. Kankash Publisher. First Edition, 2015. ISBN: 978-600-136-303-0.

[20] Ostad-Ali-Askari K, Shayannejad M, Eslamian S, Navab-Pour B. 2016, Comparison of solution of Saint-Venant equations by characteristics and finite difference methods for unsteady flow analyzing in open channel. International Journal of Hydrology Science and Technology, 6(3), 9-18.

[21] Ostad-Ali-Askari K, Shayannejad M, Eslamian S, et al. 2017, Deficit Irrigation: Optimization Models. Management of Drought and Water Scarcity. Handbook of Drought and Water Scarcity, Taylor & Francis Publisher, USA. Vol. 3. 1th Edition, pp: 373-389.

[22] Shayannejad M, Ostad-Ali-Askari K, Eslamian S, et al. 2017, Development of a new method for determination of infiltration coefficients in furrow irrigation with natural non-uniformity of slope. Sustain. Water Resour. Manag., 3(2): 163-169.

[23] Shojaei N, Shafaei-Bejestan M, Eslamian S, Marani-Barzani M, P. Singh V, Kazemi M, Ostad-Ali-Askari K. 2017, Assessment of Drainage Slope on the Manning Coarseness Coefficient in Mountain Area. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(1): 33-40.

[24] Bahmanpour H, Awhadi S, Enjili J, Eslamian S, Ostad-Ali-Askari K. 2017, Optimizing Absorbent Bentonite and Evaluation of Contaminants Removal from Petrochemical Industries Wastewater. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(2): 34-42.

[25] Shayannejad M, Eslamian S, Gandomkar A, Marani-Barzani M, Amoushahi-Khouzani M, Majidifar Z, Rajaei-Rizi F, Kazemi M, P. Singh V, Dehghan SH, Shirvani-Dastgerdi H.R, Norouzi H, Ostad-Ali-Askari K. 2017, A Proper Way to Install Trapezoidal Flumes for Measurements in Furrow Irrigation Systems. International Journal of Research Studies in Agricultural Sciences (IJRSAS), 3(7): 1-5.

[26] Dehghan Sh, Kamaneh S.A.A., Eslamian S, Gandomkar A, Marani-Barzani M, Amoushahi-Khouzani M, Singh V.P., Ostad-Ali-Askari K. 2017, Changes in Temperature and Precipitation with the Analysis of Geomorphic Basin Chaos in Shiraz, Iran. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(2): 50-57.

[27] Eslamian S, Mirabbasi-Najafabadi R, Ostad-Ali-Askari K. Advance Engineering Statistics (Simulation and Modeling of Uncertainty and Sensitivity Analysis). Kankash Publisher. First Edition, 2017. ISBN: 978-600-136-359-7. Isfahan, Iran.

[28] Ostad-Ali-Askari K, Shayannejad M. 2016, Flood Routing In Rivers By Muskingum's Method With New Adjusted Coefficients. International Water Technology Journal, IWTJ, 6(3): 189-194.

[29] Godarzi A, Eslamian S, Ostad-Ali-Askari K. Water in Literature Aspects (Social and Cultural Aspects). Publication of Tehran Municipality. First Edition, 2016. ISBN: 978-600-439-096-5. Tehran, Iran.

[30] Ostad-Ali-Askari K, Eslamian S, Shayannejad M, et al. Groundwater Hydrodynamic. Horoufchin Publisher. First Edition, 2016. ISBN: 978-600-7419-53-3. Isfahan, Iran.

[31] Ostad-Ali-Askari K, Shayannejad M, Ghorbanizadeh-Kharazi H. 2017, Artificial Neural Network for Modeling Nitrate Pollution of Groundwater in Marginal Area of Zayandeh-rood River, Isfahan, Iran. KSCE Journal of Civil Engineering, 21(1):134-140. Korean Society of Civil Engineers. DOI 10.1007/s12205-016-0572-8.

[32] Shayannejad M, Ostad-Ali-Askari K, Ramesh A, Singh V.P., Eslamian S. 2017, Wastewater and Magnetized Wastewater Effects on Soil Erosion in Furrow Irrigation. International Journal of Research Studies in Agricultural Sciences (IJRSAS), 3(8): 1-14. http://dx.doi.org/10.20431/2454-6224.0308001.

[33] Shayannejad M, Soltani-Toudeshki A.R, Arab M.A, Eslamian S, Amoushahi-Khouzani M, Marani-Barzani M, Ostad-Ali-Askari K. 2017, A Simple Method for Land Grading Computations and its Comparison with Genetic Algorithm (GA) Method. International Journal of Research Studies in Agricultural Sciences (IJRSAS), 3(8): 26-38.

[34] Mohieyimen P, Eslamian S, Ostad-Ali-Askari K, Soltani M. 2017, Climate Variability: Integration of Renewable Energy into Present and Future Energy Systems in Designing Residential Buildings. International journal of Rural Development, Environment and Health Research(IJREH), 1(2): 18-30.

[35] Shayannejad M, Ostad-Ali-Askari K, Eslamian S, et al. 2017, Flow Hydraulic Investigation of the Wastewater on the Soil and Magnetic Field Effects in This Field. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(3): 1-15.

[36] Shayannejad M, Eslamian S, Singh V.P., Ostad-Ali-Askari K, et al. 2017, Evaluation of Groundwater Quality for Industrial Using GIS in Mountainous Region of Isfahan Province, Koh-Payeh, Isfahan, Iran. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(3): 24-37.

[37] Eslamian S, P. Singh V, Ostad-Ali-Askari K, R. Dalezios N, Yihdego Y, et al. 2017, Assessment of Aridity Using Geographical Information System in

Zayandeh-Roud Basin, Isfahan, Iran. International Journal of Mining Science (IJMS), 3(2): 49-61.

[38] Askari Z, Samadi-Boroujeni H, Fattahi-Nafchi R, Yousefi N, Eslamian S, Ostad-Ali-Askari K, P. Singh V, R. Dalezios N. 2017, Prediction Comparison of Flow Resistance in Channels with Rounded and Angular Coarse Rough Beds. American Research Journal of Civil and Structural, 3(1): 1-15.

[39] Ghane M, Alvankar S.R., Eslamian S, Amoushahi-Khouzani M, Gandomkar A, Zamani E, Marani-Barzani M, Kazemi M, Soltani M, Dehghan SH, P. Singh V, Ostad-Ali-Askari K, HaeriHamedani M, Shirvani-Dastgerdi H.R., Zalaki-Badil N. 2017, Sensitivity Analysis of Runoff Model by SWAT to Meteorological Parameters: A Case Study of Kasillian Watershed, Mazandaran, Iran. International Journal of Research Studies in Agricultural Sciences (IJRSAS), 3(10): 1-20.

[40] Shayannejad M, Abedi M.S., Eslamian S, Ostad-Ali Askari K, Gandomkar A, Cheng A, et al. 2017, The Contribution of Artificial Charging in Optimal Exploitation of Water Resources, Isfahan, Iran. International Journal of Mining Science (IJMS), 3(3): 9-20.

[41] Eslamian S, Ostad-Ali Askari K, et al. 2017, Guidelines to Optimal Design of Furrow Irrigation Based on Plants, Soil and Furrow Specifications. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(4): 20-39.

[42] Eslamian S, Gandomkar A, Khademolhoseiny A, Ostad-Ali Askari K, et al. 2017, The Study on the Geo-Morphism Related Characteristics of Shiraz Geomorphic Basin, Fars Province, Iran. International Journal of Mining Science (IJMS), 3(4): 10-23. DOI: http://dx.doi.org/10.20431/2454-9460.0304002

[43] Eslamian S, Ostad-Ali Askari K, P. Singh V, R. Dalezios N, Yihdego Y, Matouq M. 2017, A Review of Drought Indices. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(4): 48-66. DOI: http://dx.doi.org/10.20431/2454-8693.0304005.

[44] Ghasemi-Zaniani M, Eslamian S, Ostad-Ali Askari K, P. Singh V, R. 2017, Irrigation with Waste Water Treated by Constructed Wetlands. International Journal of Research Studies in Agricultural Sciences (IJRSAS), 3(11): 18-34. DOI: http://dx.doi.org/10.20431/2454-6224.0311002.

[45] Zalaki N, Zohoorian-Pordel M, Bornaa R, Neisi H, Eslamian S, Ostad-Ali-Askari K, P. Singh V, et al. 2017, Assessment of Anthropogenic Influences on the Micro-Climate of Wetland Ecosystems: The Case of Hoor-Alazim Wetland in Iran. International Journal of Mining Science (IJMS), 3(4): 34-51. DOI: http://dx.doi.org/10.20431/2454-9460.0304004.

[46] Hasheminasab S.A, Pirnazar M, Hasheminasab S.H, Zand Karimi A, Eslamian S, Ostad-Ali-Askari K, P. Singh V, R. Dalezios N. 2017, Fire Risk Potential Checking in Forests using Fire Risk Model. International Journal of Constructive Research in Civil Engineering (IJCRCE), 3(4): 67-75. DOI: http://dx.doi.org/10.20431/2454-8693.0304006.

[47] Yousefi, N., Khodashenas, S. R., Eslamian, S. and Askari, Z. 2016. Estimating width of the stable channels using multivariable mathematical models, Arab. J. Geosci., Vol. 9, No. 321, DOI 10.1007/s12517-016-2322-0.

[48] Banihabib, M. E., Zahraei, A. and Eslamian, S., 2016. Dynamic Programming Model for the System of a Non- Uniform Deficit Irrigation and a Reservoir. Irrigation and Drainage, Vol. 66, No. 1, 71–81

[49] Zalewski, M., McClain, M. and Eslamian, S., 2016. New challenges and dimensions of Ecohydrology–enhancement of catchments sustainability potential, Ecohydrology and Hydrobiology, 16, 1–3

[50] Zalewski, M., McClain, M. and Eslamian, S., 2016. Ecohydrology–the background for the integrative sustainability science, Ecohydrology and Hydrobiology, No. 16, 71–73.

[51] Kouhestani, S., Eslamian, S.S., Abedi-Koupai, J. and Besalatpour, A.A., 2016. Projection of climate change impacts on precipitation using soft-computing techniques: A case study in Zayandeh-rud Basin, Iran. Global and Planetary Change, No. 144, 158–170.

[52] Teimouri, A., Eslamian, S. and Shabankare, A. 2016. Removal of Heavy Metals from Aqueous Solution by Red Alga Gracilaria Corticata as a New Biosorbent, Trends in Life Science, Vol. 5, No. 1, 236-243.

[53] Amiri, M.J., Hamidifar, H., Bahrami, M. and Eslamian, S. (2016) 'Optimisation of deficit-irrigation under variable seasonal rainfall and planning scenarios for rice in a semi-arid region of Iran', International Journal of Hydrology Science and Technology, Vol. 6, No. 4, 331–343.

[54] Salarijazi, M., Abdolhosseini, M., Ghorbani, K. and Eslamian, S. 2016, Evaluation of quasi-maximum likelihood and smearing estimator to improve sediment rating curve estimation', International Journal of Hydrology Science and Technology, Vol. 6, No. 4, 359–370.

[55] Amiri, M.J., Bahrami, M., Hamidifar, H. and Eslamian, S., 2016. Modification of furrow Manning's roughness coefficient estimation by finite difference technique under surge and continuous flow. International Journal of Hydrology Science and Technology, Vol. 6, No. 3, 226-237.

[56] Zahraei, A., Eslamian, S. and Saadati, S., 2016. The effect of water extraction time from the river on the performance of off-stream reservoirs. International Journal of Hydrology Science and Technology, 6(3): 254-265.

[57] Zareian, M. J. and Eslamian, S., 2016, Variation of water resources indices in a changing climate, International Journal of Hydrology Science and Technology, Vol. 6, No. 2, 173 – 187.

[58] Fathian, F., Dehghan, Z.., Eslamian, S., Adamowski, J., 2016, Assessing Irrigation Network Performance Based on Different Climate Change and Water Supply Scenarios: A Case Study in Northern Iran, International Journal of Water, Accepted.

[59] Fathian, F., Dehghan, Z.., Eslamian, S., 2016, Evaluating the impact of changes in land cover and climate variability on streamflow trends (case study: eastern subbasins of Lake Urmia, Iran), J. Hydrology Science and Technology, Vol. 6, No. 1, 1-26.

[60] Dalezios, N. R. and Eslamian, S, 2016, Regional design storm of Greece within the flood risk management framework, Int. J. Hydrology Science and Technology, Vol. 6, No. 1, 82–102.

[61] Kamali, M. I., Nazari, R., Fridhosseini, A., Ansari, H., Eslamian, S., 2015, The Determination of Reference Evapotranspiration for Spatial Distribution Mapping Using Geostatistics, Vol. 29: 3929–3940.

[62] Talchabhadel, R., Shakya, N. M. Dahal, V., and Eslamian, S., 2015, Rainfall Runoff Modelling for Flood Forecasting (A Case Study on West Rapti Watershed), Journal of Flood Engineering, Vol. 6, No. 1, 53-61.

[63] Yousefi, N., Safaee, A., Eslamian, S., 2015, The Optimum Design of Flood Control System Using Multivariate Decision Making Methods (Case Study: Kan River Catchment Basin, Iran), Journal of Flood Engineering, Vol. 6, No. 1, 63-82.

[64] Banihabib, M. E., Zahraei, A. and Eslamian, S., 2015, An integrated optimization model of reservoir and irrigation system applying uniform deficit irrigation, Int. J. Hydrology Science and Technology, Vol. 5, No. 4, 372–385.

[65] Fathian, F., Prasad, A. D., Dehghan, Z.., Eslamian, S., 2015, Influence of land use/land cover change on land surface temperature using RS and GIS techniques, Int. J. Hydrology Science and Technology, Vol. 5, No. 3, 195–207.

[66] Abedi-koupai, J., Mollaei, R., Eslamian, S. S., 2015, The effect of pumice on reduction of cadmium uptake by spinach irrigated with wastewater, Ecohydrology and Hydrobiology, Vol. 15, No. 4, 208-214.

[67] Kamali, M. I., Nazari, R., Faridhosseini, A., Ansari, H., Eslamian, S., 2015, The Determination of Reference Evapotranspiration for Spatial Distribution Mapping Using Geostatistics, Water Resources Management, 29:3929-3940.

[68] Valipour, M., Gholami Sefidkouhi, M. A., Eslamian, S., 2015, Surface irrigation simulation models: a review, Int. J. Hydrology Science and Technology, Vol. 5, No. 1, 51-70.

[69] Esmailzadeh, M., Heidarpour, M., Eslamian, S., 2015, Flow characteristics of sharp-crested side sluice gate, ASCE's Journal of Irrigation and Drainage Engineering, Vol. 141, No. 7, 10.1061/(ASCE)IR.1943-4774.0000852.

[70] Zareian, M. J., Eslamian, S. and Safavi, H. R., 2015, A modified regionalization weighting approach for climate change impact assessment at watershed scale, Theor. Appl. Climatol., 122:497-516.

[71] Boucefiane A., Meddi M., Laborde J. P., Eslamian S. S., 2014, Rainfall Frequency Analysis Using Extreme Values, Distributions in the Steppe Region of Western Algeria, Int. J. Hydrology Science and Technology, Vol. 4, No. 4, 348-367.

[72] Valipour, M., Eslamian, S., 2014, Analysis of potential evapotranspiration using 11 modified temperature-based models, Int. J. Hydrology Science and Technology, Vol. 4, No. 3, 192-207.

[73] Meddi, M., Toumi, S., Assani, A. A., Eslamian, S., 2014, Regionalization of Rainfall Erosivity in Northern Algeria, Int. J. Hydrology Science and Technology, Vol. 4, No. 2, 155-175.

[74] Zohrabi, N., Massah Bavani, A., Goodarzi, E., S. Eslamian, 2014, Attribution of temperature and precipitation changes to greenhouse gases in northwest Iran, Quaternary International, Vol. 345, 130-137.

[75] Farshad F., Dehghan, Z., Eslamian, S., H. Bazrkar, 2015, Trends in hydrologic and climatic variables affected by four variations of Mann-Kendall approach in Urmia Lake basin, Iran, Hydrological Sciences Journal, DOI:10.1080/02626667.2014.932911.

[76] Fazlolahi, H. and S. S. Eslamian, 2014, Using wetland plants in nutrient removal from municipal wastewater, Int. J. Hydrology Science and Technology, Vol. 4, No. 1, 68–80.

[77] Farshad F., Dehghan, Z. and S. Eslamian, 2014, Analysis of Water Level Changes in Lake Urmia Based on Data Characteristics and Nonparametric Test, Int. J. Hydrology Science and Technology, Vol. 4, No. 1, 18–38.

[78] Galoie, M., Eslamian, S., and A. Motamedi, 2014, An Investigation of the Influence of a Retention Dam on Flood Control in a Small Catchment Area in Austria, Journal of Flood Engineering, Vol. 5, No. 1/2, 1–15.

[79] Deiminiat, A. and S. Eslamian, 2014, A Telemetry and Tele Control System for Local Flood Warning, A Case Study, Journal of Flood Engineering, Vol. 5, No. 1/2, 87–100.

[80] Biabanaki, M., Eslamian, S., Abedi Koupai, J., Cañón, J., Boni, G. and M. Gheysari, 2014, A principal components/singular spectrum analysis approach to ENSO and PDO influences on rainfall in western Iran, Journal of Hydrology Research, Vol. 45, No. 2, 250-262.

[81] Matouq, M., El-Hasan, T., Al-Bilbisi, H., Abdelhadi, M., Hindiyeh, M., Eslamian, S. and S. Duheisat, 2013, The climate change implication on Jordan: A case study using GIS and Artificial Neural Networks for weather forecasting, Journal of Taibah University for Science, Vol. 7, No. 2, 44-55.

[82] Fazlolahi, H. and S. S. Eslamian, 2013, Nitrogen and Phosphorus removal from municipal wastewater by three wetland plant species, Journal of River Engineering, Vol. 1, No. 2., 14–20.

[83] Bahmani, R., Radmanesh, F., Eslamian, S., Khorsandi, M., Zamani, R., 2013, Proper Rainfall for Peak Flow Estimation by Integration of L-Moment Method and a Hydrological Model, International Research Journal of Applied and Basic Sciences, Vol. 4, No. 10, 2959-2967.

[84] Fakhry, M., Farzaneh, M. R., Eslamian, S. S. and M. J. Khordadi, 2013, Confidence interval assessment to estimate dry and wet spells under climate change in Shahrekord Station, Iran, ASCE, Journal of Hydrologic Engineering, Vol. 18, No. 7, 911-918.

[85] Abdolvandi, A. F., Eslamian, S. S., Heidarpour, M., Babazadeh, H., Parsamehr, A., 2013, Simultaneous Simulation of both Surface and Groundwater Resources Using System Dynamics Approach (Case Study: Taleghan Dam), Advances in Environmental Biology, Vol. 7, No. 4, 562-570.

[86] Bazrkar, M.H., Tavakoli-Nabavi, E., Zamani, N. and Eslamian, S., 2013, System dynamic approach to hydro-politics in Hirmand transboundary river basin from sustainability perspective, Int. J. Hydrology Science and Technology, Vol. 3, No. 4, 378–398.

[87] Hadizadeh, R., Eslamian, S. and Chinipardaz, R., 2013, Investigation of long-memory properties in streamflow time series in Gamasiab River, Iran', Int. J. Hydrology Science and Technology, Vol. 3, No. 4, 319–350.

[88] Zamani Nuri, A., Farzaneh, M. R., Fakhri, M., Dokoohaki, H., Eslamian, S. and Khordadi, M. J., 2013, Assessment of future climate classification on Urmia Lake basin under effect of climate change, Int. J. Hydrology Science and Technology, Vol. 3, No. 2, 128-140.

[89] Varshney, L., Saket, R. K. and Eslamian, S., 2013, Power estimation and reliability evaluation of municipal waste water and self-excited induction generator-based micro hydropower generation system, Int. J. Hydrology Science and Technology, Vol. 3, No. 2, 176-191.

[90] Amiri, M. J., Abedi-Koupai, J., Eslamian, S., Mousavi, S. F. and Arshadi, M., 2013, Modelling Pb(II) adsorption based on synthetic and industrial wastewaters by ostrich bone char using artificial neural network and multivariate non-linear regression, Int. J. Hydrology Science and Technology, Vol. 3, No. 3, 221-240.

[91] Eslamian, S., Tarkesh Esfahany, S., Nasri, M. and Safamehr, M., 2013, Evaluating the potential of urban reclaimed water in area of north Isfahan, Iran, for industrial reuses, Int. J. Hydrology Science and Technology, Vol. 3, No. 3, 257-269.

[92] Ajigoh, E. and Eslamian, S., 2013, Nyando catchment GIS modeling of flood in undated areas, Journal of Flood Engineering, Vol. 4, No. (1-2), 77–86.

[93] Galoie, M., Zenz, G. and Eslamian, S., 2013, Determining the high flood risk regions using a rainfall-runoff modeling in a small basin in catchment area in Austria, Journal of Flood Engineering, Vol. 4, No. (1-2), 9–27.

[94] Bazrkar, M. H., Fathian, F., and Eslamian, S., 2013, Runoff modeling in order to investigate the most effective factors in flood events using system dynamic approach (Case study: Tehran Watershed, Iran), Journal of Flood Engineering, Vol. 4, No. 1-2, 39–59.

[95] Galoie, M., Zenz, G. and Eslamian, S., 2013, Application of L-moments for IDF determination in an Austrian basin, Int. J. Hydrology Science and Technology, Vol. 3, No. 1, 30-48.

[96] Rostamian, R., Eslamian, S. and Farzaneh, M. R., 2013, Application of standardised precipitation index for predicting meteorological drought intensity in Beheshtabad watershed, central Iran, Int. J. Hydrology Science and Technology, Vol. 3, No. 1, 63-77.

[97] Bahmani, R., Radmanesh, F., Eslamian, S., Khorsandi, M. and Zamani, R., 2013, Proper Rainfall for Peak Flow Estimation by Integration of L-Moment Method and a hydrologic model, International Research Journal of Applied and Basic Sciences, Vol. 4 No. 10, 2959-2967.

[98] Mirabbasi, R., Anagnostou, E. N., Fakheri-Fard, A. Dinpashoh, Y. and Eslamian, S., 2013, Analysis of meteorological drought in northwest Iran using the Joint Deficit Index, Journal of Hydrology, Vol. 492, 35–48.

[99] Gohari, A., Eslamian, S., Mirchi, A., Abedi-Koupaei, J., Massah-Bavani, A., Madani, K., 2013, Water transfer as a solution to water shortage: A fix that can blackfire, Journal of Hydrology, Vol. 491, 23–39.

[100] Haghiabi, A. H., Mohammadzadeh-Habili, J., Eslamian, S. S., and S. F. Mousavi, 2013, Derivation of Ewservior's Area-Capacity Equations Based on the Shape Factor, Iranian Journal of Science and Technology, Vol. 37, No. C1, 163-167.

[101] Gohari, A., Eslamian, S., Abedi-Koupaei, J.,

Massah-Bavani, A., Wang, D., Madani, K., 2013, Climate change impacts on crop production in Iran's Zayandeh-Rud River Basin. Science of The Total Environment, Vol. 442, 405-419.

[102] Saatsaz, M., Azmin Sulaiman, W. N., Eslamian, S., Javadi, S., 2013, Development of a coupled flow and solute transport modelling for Astaneh-Kouchesfahan groundwater resources, North of Iran, International Journal of Water, Vol. 7, No.1/2, 80 – 103.

[103] Saatsaz, M., Azmin-Sulaiman, W. N., Eslamian, S., Mohammadi, K., 2013, Hydrogeochemistry and groundwater quality assessment of Astaneh-Kouchesfahan Plain, Northern Iran, International Journal of Water, Vol. 7, No. 1/2, 44 – 65.

[104] Eslamian, S., Amiri, M. J., Abedi-Koupai, J. and S. Shaeri-Karimi, 2013, Reclamation of unconventional water using nano zero-valent iron particles: an application for groundwater, International Journal of Water, Vol. 7, No. 1/2, 1-13.

[105] Amiri, M.J., Abedi-koupai, J., Eslamian, S. S., Mousavi, S. F., Hasheminejad, H., 2013, Modeling Pb (II) adsorption from aqueous solution by ostrich bone ash using adaptive neural-based fuzzy inference system, J Environ. Sci. Health A Tox. Hazard Subst. Environ. Eng., Vol. 48, No. 5: 543-58.

[106] Biabanaki, M., Tabatabaei Naeini, A. and S. S. Eslamian, 2012, Effects of Urbanization on Stream Channels, Journal of Civil Engineering and Urbanism (JCEU), Vo. 2, No. 4, 136-142.

[107] Abdolhosseini, M., Eslamian, S., Mousavi, S. F., 2012, Effect of climate change on potential evapotranspiration: a case study on Gharehsoo sub-basin, Iran, Vol. 2 No. 4, 362-372.

[108] Farzaneh, M. R., Eslamian, S. S., Samadi, Z. and A. Akbarpour, 2012, An appropriate general circulation model (GCM) to investigate climate change impact, International Journal of Hydrology Science and Technology, Vol. 2, No. 1, 34-47.

[109] Eslamian, S., Abedi-Koupai, J. and M. J. Zareian., 2012, Measurement and modelling of the water requirement of some greenhouse crops with artificial neural networks and genetic algorithm, International Journal of Hydrology Science and Technology, Vol. 2, No. 3, 237-251.

[110] Sadeghi, S. H., Mousavi, S. F., Eslamian, S. S., Ansari, S. and F. Alemi, 2012, A Unified Approach for Computing Pressure Distribution in Multi-Outlet Irrigation Pipelines, Iranian Journal of Science and Technology, Vol. 36, No. C2, 209-223.

[111] Alaghmand, S., Bin Abdullah, R., Abustan, I. and S. Eslamian, 2012, Comparison between capabilities of HEC-RAS and MIKE11 hydraulic models in river flood risk modeling (a case study of Sungai Kayu Ara River basin, Malaysia), International Journal of Environmental Science and Technology, Vol. 2, No. 3, 270-291.

[112] Galoie, M., Zenz, G., S. Eslamian and A. Motamedi., 2012, Numerical simulation of flood due to dam-break flow using an implicit method, International Journal of Environmental Science and Technology, Vol. 2, No. 2, 117-137.

[113] Ghazavi, R., A. B. Vali and S. Eslamian, 2012, Impact of Flood Spreading on Groundwater Level Variation and Groundwater Quality in an Arid Environment, Water Resource Management, Vol. 26, No. 6, 1651-1663.

[114] Fakhri, M., Farzaneh, M. R., Eslamian, S. and M. J. Khordadi, 2012, Uncertainty Assessment of Downscaled Rainfall: Impact of Climate Change on the Probability of Flood, Journal of Flood Engineering, Vol. 3, No. 1, 19-28.

[115] Gholami. A., Mahdavi, M. and S. Eslamian, 2012, Probability Distribution Choices for Minimum, Mean and Maximum Discharges, by L-Moments in Mazandaran Province, IRAN, Journal of Flood Engineering, Vol. 3, No. 1, 83-92.

[116] Shaeri karimi, S., Yasi, M. and S. S. Eslamian, 2012, Use of Hydrological Methods for Assessment of Environmental Flow in a River Reach, International Journal of Environmental Science and Technology, 9(3), pp 549-558.

[117] Eslamian, S. S., Hassanzadeh, H., Abedi-Koupai, J. and M. Gheysari, 2012, Application of L-moments for Regional Frequency Analysis of Monthly Drought Indices, Journal of Hydrologic Engineering, Vol. 17, No. 1, 32-42.

[118] Farzaneh, M. R., Eslamian, S. S., Samadi, Z. and A. Akbarpour, 2012, An appropriate general circulation model (GCM) to investigate climate change impact, International Journal of Hydrology Science and Technology, Vol. 2, No. 1, 34-47.

[119] Eslamian, S. S., Khordadi, M. J. and J. Abedi-Koupai, 2011, Effects of Variations In Climatic Parameters on Evapotranspiration In the Arid and Semi-Arid Regions, Global and Planetary Change, Vol. 78, 188–194.

[120] Eslamian, S. S. and M. J. Amiri, 2011, Estimation of daily pan evaporation using adaptive neural-based fuzzy inference system, International Journal of Hydrology Science and Technology, Vol. 1, Nos. 3/4, 164-175.

[121] Eslamian, S. S., Shaeri Karimi S. and F. Eslamian, 2011, A country case study comparison on Groundwater and Surface Water Interaction, International Journal of Water, Vol. 6, Nos. 1/2, 117-136.

[122] Eslamian, S. S., Gohari, A., Zareian M. J. and A. Firoozfar, 2012, Estimating Penman-Monteith Reference Evapotranspiration Using Artificial Neural Networks and Genetic Algorithm: A Case Study, The Arabian Journal for Science and

Engineering, Vol. 37, No. 4, 935-944.

[123] Hassanzadeh, H., Eslamian, S. S., Abedi-Koupai, J. and M. Gheysari, 2011, Application of L-moment for evaluating drought indices of cumulative precipitation deficit (CPD) and maximum precipitation deficit (MPD) based on regional frequency analysis, International Journal of Hydrology Science and Technology, Vol. 1, Nos. 1/2, 88–104.

[124] Alipour, M. H., Shamsai, A., Eslamian, S. S. and R. Ghasemizadeh, 2011, A new fuzzy technique to find the optimal solution in flood management, Journal of Flood Engineering, Vol. 2, No. 1, 1-9.

[125] Ghasemizade, M., Mohammadi K., and S. S. Eslamian, 2011, Estimation of design flood hydrograph for an ungauged watershed, Journal of Flood Engineering, Vol. 2, No. 1/2, 27-36.

[126] Dhital, Y. P., Kayastha, R. B. and S. S. Eslamian, 2011, Precipitation and discharge pattern analysis: a case study of Bagmati River basin, Nepal, Journal of Flood Engineering, Vol. 2, No. 1, 49-60.

[127] Saatsaz, M., Sulaiman, W.N.A. and S. S. Eslamian, 2011, GIS DRASTIC model for groundwater vulnerability estimation of Astaneh-Kouchesfahan Plain, Northern Iran, International Journalof Water, Vol. 6, No. 1/2, 1-14.

[128] Saatsaz, M., Chitsazan, M., Eslamian, S. S. and W.N.A. Sulaiman, 2011, The application of groundwater modelling to simulate the behaviour of groundwater resources in the Ramhormooz Aquifer, Iran, International Journal of Water, Vol. 6, Nos. 1/2, 29-42.

[129] Kambona, O. O., Stadel, C. and S. S. Eslamian, 2011, Perceptions of tourists on trial use and management implications for Kakamega Forest, Western Kenya, Journal of Geography and Regional Planning Vol. 4, No. 4, 243-250.

[130] Malekian, R., Abedi-Koupai, J., Eslamian, S. S., Mousavi, S. F., Abbaspour, K. C. and M. Afyuni, 2011, Ion-exchange process for ammonium removal and release using natural Iranian zeolite, Applied Clay Science, Vol. 51, 323–329.

[131] Malekian, R., Abedi-Koupai, J. and S. S. Eslamian, 2011, Influences of clinoptilolite and surfactant-modified clinoptilolite zeolite on nitrate leaching and plant growth, Journal of Hazardous Materials, Vol. 185, 970–976.

[132] Malekian, R., Abedi-Koupai, J. and S. S. Eslamian, 2011, Use of Zeolite and Surfactant Modified Zeolite as Ion Exchangers to Control Nitrate Leaching, World Academy of Science, Engineering and Technology, Vol. 76, 657-661.

[133] Zaky, M. M. M., Salem, M. A. M., Persson, K. M. M. and S. S. Eslamian, 2011, Incidence of Aeromonas species isolated from water and fish sources of Lake Manzala in Egypt, International Journal of Hydrology Science and Technology, Vol. 1, Nos. 1/2, 47–62.

[134] Khorsandi, Z., Mahdavi, M., Salajeghe, A. and S. S. Eslamian, 2011, Neural Network Application for Monthly Precipitation Data Reconstruction, Journal of Environmental Hydrology, Vol. 19, Paper 5, 1-12.

[135] Eslamian, S. S., 2010, The Physically-Statistically Based Region of Influence Approach for Flood Regionalization, Journal of Flood Engineering, Vol. 1, No. 2, 149-158.

[136] Eslamian, S. S., 2010, Flood Regionalization Using a Modified Region of Influence Approach, Journal of Flood Engineering, Vol. 1, No. 1, 51-66.

[137] Eslamian, S. S., Ghasemizadeh, M., Biabanaki, M. and M. Talebizadeh, 2010, A principal component regression method for estimating low flow index, Water Resources Management, Vol. 24, No. 11, 2553-2566.

[138] Amiri, M. J. and S. S. Eslamian, 2010, Investigation of climate change in Iran, Journal of Environmental Science and Technology, Vol. 3, No. 4, 208-216.

[139] Ghazavi, R., Vali, A. B. and S. S. Eslamian, 2010, Impact of flood spreading on infiltration rate and soil properties in an arid environment, Water Resources Management, Vol. 24, No. 11, 2781-2793.

[140] Rajabi, A., Sedghi, H., Eslamian, S. S. and H. Musavi, 2010, Comparison of Lars-WG and SDSM downscaling models in Kermanshah (Iran), Ecol. Env. & Cons., Vol. 16, No. 4, 1-7.

[141] Rahnamai Zekavat, P., Ghasemizadeh, R., Eslamian, S. S. and S. Tarkesh Isfahani, 2010, Journal of Flood Engineering, Vol. 1, No. 2, 175-184.

[142] Chavoshi Borujeni, S., Sulaiman, W. N. A. and S. S. Eslamian, 2010, Regional Flood Frequency Analysis Using L-Moments for North Karoon Basin Iran, Journal of Flood Engineering, Vol. 1, No. 1, 67-76.

[143] Kloub, N., Matouq, M., Krishan, M., Eslamian, S. S. and M. Abdelhadi, 2010, Monitoring of Water Resources Degradation at Al-Azraq Oasis, Jordan Using Remote Sensing and GIS Techniques, International Journal of Global Warming, Vol. 2, No. 1, 1-16.

[144] Akhavan S., Abedi-Koupai, J, Mousavi, S, F., Afyuni, M., Eslamian, S. S. and K. C. Abbaspour, 2010, Application of SWAT model to investigate nitrate leaching in Hamadan–Bahar Watershed, Iran, Agriculture, Ecosystems and Environment, Vol. 139, 675-688.

[145] Eslamian, S. S., Abedi-Koupai, J., Amiri, M, J., and A. R. Gohari, 2009, Estimation of Daily Reference Evapotranspiration Using Support Vector Machines and Artificial Neural Networks in

Greenhouse, Research Journal of Environmental Sciences, Vol. 3, No. 4, 439-447.

[146] Eslamian, S. S. and N. Lavaei, 2009, Modelling Nitrate Pollution of Groundwater using Artificial Neural Network and Genetic Algorithm in an Arid Zone, International Journal of Water, Special Issue on Groundwater and Surface Water Interaction (GSWI), Vol. 5, No. 2, 194-203.

[147] Eslamian, S. S. and M. J. Khordadi, 2009, Comparing Rainfall and Discharge Trends in Karkhe Basin, Iran, International Journal of Ecological Economics & Statistics (IJEES), Vol. 15, No. F09, 114-122.

[148] Eslamian, S. S. and B. Nekoueineghad, 2009, A Review on Interaction of Groundwater and Surface Water, International Journal of Water, Special Issue on Groundwater and Surface Water Interaction (GSWI), Vol. 5, No. 2, 82-99.

[149] Eslamian, S. S. and N. Zamani, 2009, Innovations in Wind Modelling, International Journal of Global Energy Issues, Special Issue on Wind Modelling and Frequency Analysis (WMFA), Vol. 32, No. 3, 175-190.

[150] Eslamian, S. S. and H. Hasanzadeh, 2009, Detecting and Evaluating Climate Change Effect on Frequency Analysis of Wind Speed in Iran, International Journal of Global Energy Issues, Special Issue on Wind Modelling and Frequency Analysis (WMFA). Vol. 32, No. 3, 295 – 304.

[151] Eslamian, S. S., 2009, Editorial: Frontiers in Ecology and Environment, International Journal of Ecological Economic & Statistics, Special Issue on Basin Ecology and Environment (BEE), Vol. 13, No. W09, 1-6.

[152] Eslamian, S. S. and M. Biabanaki, 2009, Low Flow Regionalization Models, International Journal of Ecological Economic & Statistics, Special Issue on Stream Ecology and Low Flows (SELF), Vol. 12, No. F08, 82-97.

[153] Eslamian, S. S., 2009, Editorial: An Ecologically Based Low Flow Review, International Journal of Ecological Economic & Statistics, Special Issue on Stream Ecology and Low Flows (SELF), Vol. 12, No. F08, 1-6.

[154] Nosrati, K., Eslamian, S. S., Shahbazi, A., Malekian, A. and M. M. Saravi, 2009, Application of Daily Water Resources Assessment Model for Monitoring Water Resources Indices, International Journal of Ecological Economic & Statistics, Special Issue on Basin Ecology and Environment (BEE), Vol. 13, No. W09, 88-99.

[155] Abedi-Koupai, J., Amiri, M. J., and S. S. Eslamian, 2009, Comparison of Artificial Neural Network and Physically Based Models for Estimating of Reference Evapotranspiration in Greenhouse, Australian Journal of Basic and Applied Sciences, Vol. 3, No. 3, 2528-2535,

[156] Ebrahimizadeh, M. A., Amiri, M. J., Eslamian, S. S., Abedi-Koupai, J. and M. Khozaei, 2009, The Effects of Different Water Qualities and Irrigation Methods on Soil Chemical Properties, Research Journal of Environmental Sciences, Vol. 3, No. 4, 497-503.

[157] Matouq, M., Amarneh, I. A., Kloub, N., Badran, O., Al-Duheisat, S. A. and S. S. Eslamian, 2009, Investigating the Effect of Combustion of Blending Jordanian Diesel Oil with Kerosene on Reducing the Environmental Impacts by Diesel Engine, International Journal of Ecological Economic & Statistics, Special Issue on Basin Ecology and Environment (BEE), Vol. 13, No. W09, 79-87.

[158] Eslamian S. S., Gohari, A., Biabanaki, M. and R. Malekian, 2008, Estimation of Monthly Pan Evaporation Using Artificial Neural Networks and Support Vector Machines, Journal of Applied Sciences, Vol. 7, No. 19, 2900-2903.

[159] Abedi-Koupai J., Eslamian S. S. and J. Asad Kazemi, 2008, Enhancing the available Water Content in Unsaturated Soil Zone using Hydrogel, to Improve Plant Growth Indices, Ecohydrology and Hydrobiology, Vol. 8, No. 1, 3-11.

[160] Bazgeer, S., Kamali, G. A., Eslamian, S. S., Sedaghatkerdar, A. and I. Moradi, 2008, Pre-Harvest Wheat Yield Prediction Using Agrometeorological Indices for Different Regions of Kordestan Province, Iran, Research Journal of Environmental Sciences, Vol. 2, No. 4, 275-280.

[161] Eslamian, S. S. and H. Feizi, 2007, Maximum Monthly Rainfall Analysis Using L-moments for an Arid Region in Isfahan Province, Iran, Journal of Applied Meteorology and Climatology, Vol. 46, No. 4, 494–503.

[162] Modarres, R., Soltani, S. and S. S. Eslamian, 2007, The Use of Time Series Modeling for the Determination of Rainfall Climates of Iran, International Journal of Climatology, Vol. 27, No. 6, 819–829.

[163] Moradi, I., Nosrati, K. and S. S. Eslamian, 2007, Evaluation of the RadEst and ClimGen Stochastic Weather Generators for Low-Medium Rainfall Regions, Journal of Applied Sciences, Vol. 7, No. 19, 2900-2903.

[164] Modarres R. and S. S. Eslamian, 2006, Streamflow Time Series Modeling of Zayandehrud River, Iranian Journal of Science and Technology, Vol. 30, No. B4, 567-570.

[165] Mostafazadeh-fard, B., Osroosh, Y. and S. S. Eslamian, 2006, Development and Evaluation of an Automatic Surge Flow Irrigation System, Journal of Agriculture and Social Sciences, Vol. 2, No. 3, 129-132.

[166] Yousefi, N., Khodashenas, S. R., Eslamian, S. and Askari, Z. 2016. Estimating width of the stable channels using multivariable mathematical models, Arab. J. Geosci., Vol. 9, No. 321, DOI 10.1007/s12517-016-2322-0.

[167] Banihabib, M. E., Zahraei, A. and Eslamian, S., 2016. Dynamic Programming Model for the

System of a Non- Uniform Deficit Irrigation and a Reservoir. Irrigation and Drainage, Vol. 66, No. 1, 71–81

[168] Zalewski, M., McClain, M. and Eslamian, S., 2016. New challenges and dimensions of Ecohydrology–enhancement of catchments sustainability potential, Ecohydrology and Hydrobiology, 16, 1–3

[169] Zalewski, M., McClain, M. and Eslamian, S., 2016. Ecohydrology–the background for the integrative sustainability science, Ecohydrology and Hydrobiology, No. 16, 71–73.

[170] Kouhestani, S., Eslamian, S.S., Abedi-Koupai, J. and Besalatpour, A.A., 2016. Projection of climate change impacts on precipitation using soft-computing techniques: A case study in Zayandeh-rud Basin, Iran. Global and Planetary Change, No. 144, 158–170.

[171] Teimouri, A., Eslamian, S. and Shabankare, A. 2016. Removal of Heavy Metals from Aqueous Solution by Red Alga Gracilaria Corticata as a New Biosorbent, Trends in Life Science, Vol. 5, No. 1, 236-243.

[172] Amiri, M.J., Hamidifar, H., Bahrami, M. and Eslamian, S. (2016) 'Optimisation of deficit-irrigation under variable seasonal rainfall and planning scenarios for rice in a semi-arid region of Iran', International Journal of Hydrology Science and Technology, Vol. 6, No. 4, 331–343.

[173] Salarijazi, M., Abdolhosseini, M., Ghorbani, K. and Eslamian, S. 2016, Evaluation of quasi-maximum likelihood and smearing estimator to improve sediment rating curve estimation', International Journal of Hydrology Science and Technology, Vol. 6, No. 4, 359–370.

[174] Amiri, M.J., Bahrami, M., Hamidifar, H. and Eslamian, S., 2016. Modification of furrow Manning's roughness coefficient estimation by finite difference technique under surge and continuous flow. International Journal of Hydrology Science and Technology, Vol. 6, No. 3, 226-237.

[175] Zahraei, A., Eslamian, S. and Saadati, S., 2016. The effect of water extraction time from the river on the performance of off-stream reservoirs. International Journal of Hydrology Science and Technology, 6(3): 254-265.

[176] Zareian, M. J. and Eslamian, S., 2016, Variation of water resources indices in a changing climate, International Journal of Hydrology Science and Technology, Vol. 6, No. 2, 173 – 187.

[177] Fathian, F., Dehghan, Z.., Eslamian, S., Adamowski, J., 2016, Assessing Irrigation Network Performance Based on Different Climate Change and Water Supply Scenarios: A Case Study in Northern Iran, International Journal of Water, Accepted.

[178] Fathian, F., Dehghan, Z.., Eslamian, S., 2016, Evaluating the impact of changes in land cover and climate variability on streamflow trends (case study: eastern subbasins of Lake Urmia, Iran), J. Hydrology Science and Technology, Vol. 6, No. 1, 1-26.

[179] Dalezios, N. R. and Eslamian, S, 2016, Regional design storm of Greece within the flood risk management framework, Int. J. Hydrology Science and Technology, Vol. 6, No. 1, 82–102.

[180] Kamali, M. I., Nazari, R., Fridhosseini, A., Ansari, H., Eslamian, S., 2015, The Determination of Reference Evapotranspiration for Spatial Distribution Mapping Using Geostatistics, Vol. 29: 3929–3940.

[181] Talchabhadel , R., Shakya, N. M. Dahal , V., and Eslamian, S., 2015, Rainfall Runoff Modelling for Flood Forecasting (A Case Study on West Rapti Watershed), Journal of Flood Engineering, Vol. 6, No. 1, 53-61.

[182] Yousefi, N., Safaee, A., Eslamian, S., 2015, The Optimum Design of Flood Control System Using Multivariate Decision Making Methods (Case Study: Kan River Catchment Basin, Iran), Journal of Flood Engineering, Vol. 6, No. 1, 63-82.

[183] Banihabib, M. E., Zahraei, A. and Eslamian, S., 2015, An integrated optimization model of reservoir and irrigation system applying uniform deficit irrigation, Int. J. Hydrology Science and Technology, Vol. 5, No. 4, 372–385.

[184] Fathian, F., Prasad, A. D., Dehghan, Z.., Eslamian, S., 2015, Influence of land use/land cover change on land surface temperature using RS and GIS techniques, Int. J. Hydrology Science and Technology, Vol. 5, No. 3, 195–207.

[185] Abedi-koupai, J., Mollaei, R., Eslamian, S. S., 2015, The effect of pumice on reduction of cadmium uptake by spinach irrigated with wastewater, Ecohydrology and Hydrobiology, Vol. 15, No. 4, 208-214.

[186] Kamali, M. I., Nazari, R., Faridhosseini, A., Ansari, H., Eslamian, S., 2015, The Determination of Reference Evapotranspiration for Spatial Distribution Mapping Using Geostatistics, Water Resources Management, 29:3929-3940.

[187] Valipour, M., Gholami Sefidkouhi, M. A., Eslamian, S., 2015, Surface irrigation simulation models: a review, Int. J. Hydrology Science and Technology, Vol. 5, No. 1, 51-70.

[188] Esmailzadeh, M., Heidarpour, M., Eslamian, S., 2015, Flow characteristics of sharp-crested side sluice gate, ASCE's Journal of Irrigation and Drainage Engineering, Vol. 141, No. 7, 10.1061/(ASCE)IR.1943-4774.0000852.

[189] Zareian, M. J., Eslamian, S. and Safavi, H. R., 2015, A modified regionalization weighting approach for climate change impact assessment at watershed scale, Theor. Appl. Climatol., 122:497-516.

[190] Boucefiane A., Meddi M., Laborde J. P., Eslamian S. S., 2014, Rainfall Frequency Analysis Using

Extreme Values, Distributions in the Steppe Region of Western Algeria, Int. J. Hydrology Science and Technology, Vol. 4, No. 4, 348-367.

[191] Valipour, M., Eslamian, S., 2014, Analysis of potential evapotranspiration using 11 modified temperature-based models, Int. J. Hydrology Science and Technology, Vol. 4, No. 3, 192-207.

[192] Meddi, M., Toumi, S., Assani, A. A., Eslamian, S., 2014, Regionalization of Rainfall Erosivity in Northern Algeria, Int. J. Hydrology Science and Technology, Vol. 4, No. 2, 155-175.

[193] Zohrabi, N., Massah Bavani, A., Goodarzi, E., S. Eslamian, 2014, Attribution of temperature and precipitation changes to greenhouse gases in northwest Iran, Quaternary International, Vol. 345, 130-137.

[194] Farshad F., Dehghan, Z., Eslamian, S., H. Bazrkar, 2015, Trends in hydrologic and climatic variables affected by four variations of Mann-Kendall approach in Urmia Lake basin, Iran, Hydrological Sciences Journal, DOI:10.1080/02626667.2014.932911.

[195] Fazlolahi, H. and S. S. Eslamian, 2014, Using wetland plants in nutrient removal from municipal wastewater, Int. J. Hydrology Science and Technology, Vol. 4, No. 1, 68–80.

[196] Farshad F., Dehghan, Z. and S. Eslamian, 2014, Analysis of Water Level Changes in Lake Urmia Based on Data Characteristics and Nonparametric Test, Int. J. Hydrology Science and Technology, Vol. 4, No. 1, 18–38.

[197] Galoie, M., Eslamian, S., and A. Motamedi, 2014, An Investigation of the Influence of a Retention Dam on Flood Control in a Small Catchment Area in Austria, Journal of Flood Engineering, Vol. 5, No. 1/2, 1–15.

[198] Deiminiat, A. and S. Eslamian, 2014, A Telemetry and Tele Control System for Local Flood Warning, A Case Study, Journal of Flood Engineering, Vol. 5, No. 1/2, 87–100.

[199] Biabanaki, M., Eslamian, S., Abedi Koupai, J., Cañón, J., Boni, G. and M. Gheysari, 2014, A principal components/singular spectrum analysis approach to ENSO and PDO influences on rainfall in western Iran, Journal of Hydrology Research, Vol. 45, No. 2, 250-262.

[200] Matouq, M., El-Hasan, T., Al-Bilbisi, H., Abdelhadi, M., Hindiyeh, M., Eslamian, S. and S. Duheisat, 2013, The climate change implication on Jordan: A case study using GIS and Artificial Neural Networks for weather forecasting, Journal of Taibah University for Science, Vol. 7, No. 2, 44-55.

[201] Fazlolahi, H. and S. S. Eslamian, 2013, Nitrogen and Phosphorus removal from municipal wastewater by three wetland plant species, Journal of River Engineering, Vol. 1, No. 2., 14–20.

[202] Bahmani, R., Radmanesh, F., Eslamian, S., Khorsandi, M., Zamani, R., 2013, Proper Rainfall for Peak Flow Estimation by Integration of L-Moment Method and a Hydrological Model, International Research Journal of Applied and Basic Sciences, Vol. 4, No. 10, 2959-2967.

[203] Fakhry, M., Farzaneh, M. R., Eslamian, S. S. and M. J. Khordadi, 2013, Confidence interval assessment to estimate dry and wet spells under climate change in Shahrekord Station, Iran, ASCE, Journal of Hydrologic Engineering, Vol. 18, No. 7, 911-918.

[204] Abdolvandi, A. F., Eslamian, S. S., Heidarpour, M., Babazadeh, H., Parsamehr, A., 2013, Simultaneous Simulation of both Surface and Groundwater Resources Using System Dynamics Approach (Case Study: Taleghan Dam), Advances in Environmental Biology, Vol. 7, No. 4, 562-570.

[205] Bazrkar, M.H., Tavakoli-Nabavi, E., Zamani, N. and Eslamian, S., 2013, System dynamic approach to hydro-politics in Hirmand transboundary river basin from sustainability perspective, Int. J. Hydrology Science and Technology, Vol. 3, No. 4, 378–398.

[206] Hadizadeh, R., Eslamian, S. and Chiniпardaz, R., 2013, Investigation of long-memory properties in streamflow time series in Gamasiab River, Iran', Int. J. Hydrology Science and Technology, Vol. 3, No. 4, 319–350.

[207] Zamani Nuri, A., Farzaneh, M. R., Fakhri, M., Dokoohaki, H., Eslamian, S. and Khordadi, M. J., 2013, Assessment of future climate classification on Urmia Lake basin under effect of climate change, Int. J. Hydrology Science and Technology, Vol. 3, No. 2, 128-140.

[208] Varshney, L., Saket, R. K. and Eslamian, S., 2013, Power estimation and reliability evaluation of municipal waste water and self-excited induction generator-based micro hydropower generation system, Int. J. Hydrology Science and Technology, Vol. 3, No. 2, 176-191.

[209] Amiri, M. J., Abedi-Koupai, J., Eslamian, S., Mousavi, S. F. and Arshadi, M., 2013, Modelling Pb(II) adsorption based on synthetic and industrial wastewaters by ostrich bone char using artificial neural network and multivariate non-linear regression, Int. J. Hydrology Science and Technology, Vol. 3, No. 3, 221-240.

[210] Eslamian, S., Tarkesh Esfahany, S., Nasri, M. and Safamehr, M., 2013, Evaluating the potential of urban reclaimed water in area of north Isfahan, Iran, for industrial reuses, Int. J. Hydrology Science and Technology, Vol. 3, No. 3, 257-269.

[211] Ajigoh, E. and Eslamian, S., 2013, Nyando catchment GIS modeling of flood in undated areas, Journal of Flood Engineering, Vol. 4, No. (1-2), 77–86.

[212] Galoie, M., Zenz, G. and Eslamian, S., 2013, Determining the high flood risk regions using a rainfall-runoff modeling in a small basin in

catchment area in Austria, Journal of Flood Engineering, Vol. 4, No. (1-2), 9–27.

[213] Bazrkar, M. H., Fathian, F., and Eslamian, S., 2013, Runoff modeling in order to investigate the most effective factors in flood events using system dynamic approach (Case study: Tehran Watershed, Iran), Journal of Flood Engineering, Vol. 4, No. 1-2, 39–59.

[214] Galoie, M., Zenz, G. and Eslamian, S., 2013, Application of L-moments for IDF determination in an Austrian basin, Int. J. Hydrology Science and Technology, Vol. 3, No. 1, 30-48.

[215] Rostamian, R., Eslamian, S. and Farzaneh, M. R., 2013, Application of standardised precipitation index for predicting meteorological drought intensity in Beheshtabad watershed, central Iran, Int. J. Hydrology Science and Technology, Vol. 3, No. 1, 63-77.

[216] Bahmani, R., Radmanesh, F., Eslamian, S., Khorsandi, M. and Zamani, R., 2013, Proper Rainfall for Peak Flow Estimation by Integration of L-Moment Method and a hydrologic model, International Research Journal of Applied and Basic Sciences, Vol. 4 No. 10, 2959-2967.

[217] Mirabbasi, R., Anagnostou, E. N., Fakheri-Fard, A. Dinpashoh, Y. and Eslamian, S., 2013, Analysis of meteorological drought in northwest Iran using the Joint Deficit Index, Journal of Hydrology, Vol. 492, 35–48.

[218] Gohari, A., Eslamian, S., Mirchi, A., Abedi-Koupaei, J., Massah-Bavani, A., Madani, K., 2013, Water transfer as a solution to water shortage: A fix that can blackfire, Journal of Hydrology, Vol. 491, 23–39.

[219] Haghiabi, A. H., Mohammadzadeh-Habili, J., Eslamian, S. S., and S. F. Mousavi, 2013, Derivation of Ewservior's Area-Capacity Equations Based on the Shape Factor, Iranian Journal of Science and Technology, Vol. 37, No. C1, 163-167.

[220] Gohari, A., Eslamian, S., Abedi-Koupaei, J., Massah-Bavani, A., Wang, D., Madani, K., 2013, Climate change impacts on crop production in Iran's Zayandeh-Rud River Basin. Science of The Total Environment, Vol. 442, 405-419.

[221] Saatsaz, M., Azmin Sulaiman, W. N., Eslamian, S., Javadi, S., 2013, Development of a coupled flow and solute transport modelling for Astaneh-Kouchesfahan groundwater resources, North of Iran, International Journal of Water, Vol. 7, No.1/2, 80 – 103.

[222] Saatsaz, M., Azmin-Sulaiman, W. N., Eslamian, S., Mohammadi, K., 2013, Hydrogeochemistry and groundwater quality assessment of Astaneh-Kouchesfahan Plain, Northern Iran, International Journal of Water, Vol. 7, No. 1/2, 44 – 65.

[223] Eslamian, S., Amiri, M. J., Abedi-Koupai, J. and S. Shaeri-Karimi, 2013, Reclamation of unconventional water using nano zero-valent iron particles: an application for groundwater, International Journal of Water, Vol. 7, No. 1/2, 1-13.

[224] Amiri, M.J., Abedi-koupai, J., Eslamian, S. S., Mousavi, S. F., Hasheminejad, H., 2013, Modeling Pb (II) adsorption from aqueous solution by ostrich bone ash using adaptive neural-based fuzzy inference system, J Environ. Sci. Health A Tox. Hazard Subst. Environ. Eng., Vol. 48, No. 5: 543-58.

[225] Biabanaki, M., Tabatabaei Naeini, A. and S. S. Eslamian, 2012, Effects of Urbanization on Stream Channels, Journal of Civil Engineering and Urbanism (JCEU), Vo. 2, No. 4, 136-142.

[226] Abdolhosseini, M., Eslamian, S., Mousavi, S. F., 2012, Effect of climate change on potential evapotranspiration: a case study on Gharehsoo sub-basin, Iran, Vol. 2 No. 4, 362-372.

[227] Farzaneh, M. R., Eslamian, S. S., Samadi, Z. and A. Akbarpour, 2012, An appropriate general circulation model (GCM) to investigate climate change impact, International Journal of Hydrology Science and Technology, Vol. 2, No. 1, 34-47.

[228] Eslamian, S., Abedi-Koupai, J. and M. J. Zareian., 2012, Measurement and modelling of the water requirement of some greenhouse crops with artificial neural networks and genetic algorithm, International Journal of Hydrology Science and Technology, Vol. 2, No. 3, 237-251.

[229] Sadeghi, S. H., Mousavi, S. F., Eslamian, S. S., Ansari, S. and F. Alemi, 2012, A Unified Approach for Computing Pressure Distribution in Multi-Outlet Irrigation Pipelines, Iranian Journal of Science and Technology, Vol. 36, No. C2, 209-223.

[230] Alaghmand, S., Bin Abdullah, R., Abustan, I. and S. Eslamian, 2012, Comparison between capabilities of HEC-RAS and MIKE11 hydraulic models in river flood risk modeling (a case study of Sungai Kayu Ara River basin, Malaysia), International Journal of Environmental Science and Technology, Vol. 2, No. 3, 270-291.

[231] Galoie, M., Zenz, G., S. Eslamian and A. Motamedi., 2012, Numerical simulation of flood due to dam-break flow using an implicit method, International Journal of Environmental Science and Technology, Vol. 2, No. 2, 117-137.

[232] Ghazavi, R., A. B. Vali and S. Eslamian, 2012, Impact of Flood Spreading on Groundwater Level Variation and Groundwater Quality in an Arid Environment, Water Resource Management, Vol. 26, No. 6, 1651-1663.

[233] Fakhri, M., Farzaneh, M. R., Eslamian, S. and M. J. Khordadi, 2012, Uncertainty Assessment of Downscaled Rainfall: Impact of Climate Change on the Probability of Flood, Journal of Flood Engineering, Vol. 3, No. 1, 19-28.

[234] Gholami. A., Mahdavi, M. and S. Eslamian, 2012, Probability Distribution Choices for Minimum, Mean and Maximum Discharges, by L-Moments in Mazandaran Province, IRAN, Journal of Flood Engineering, Vol. 3, No. 1, 83-92.

[235] Shaeri karimi, S., Yasi, M. and S. S. Eslamian, 2012, Use of Hydrological Methods for Assessment of Environmental Flow in a River Reach, International Journal of Environmental Science and Technology, 9(3), pp 549-558.

[236] Eslamian, S. S., Hassanzadeh, H., Abedi-Koupai, J. and M. Gheysari, 2012, Application of L-moments for Regional Frequency Analysis of Monthly Drought Indices, Journal of Hydrologic Engineering, Vol. 17, No. 1, 32-42.

[237] Farzaneh, M. R., Eslamian, S. S., Samadi, Z. and A. Akbarpour, 2012, An appropriate general circulation model (GCM) to investigate climate change impact, International Journal of Hydrology Science and Technology, Vol. 2, No. 1, 34-47.

[238] Eslamian, S. S., Khordadi, M. J. and J. Abedi-Koupai, 2011, Effects of Variations In Climatic Parameters on Evapotranspiration In the Arid and Semi-Arid Regions, Global and Planetary Change, Vol. 78, 188–194.

[239] Eslamian, S. S. and M. J. Amiri, 2011, Estimation of daily pan evaporation using adaptive neural-based fuzzy inference system, International Journal of Hydrology Science and Technology, Vol. 1, Nos. 3/4, 164-175.

[240] Eslamian, S. S., Shaeri Karimi S. and F. Eslamian, 2011, A country case study comparison on Groundwater and Surface Water Interaction, International Journal of Water, Vol. 6, Nos. 1/2, 117-136.

[241] Eslamian, S. S., Gohari, A., Zareian M. J. and A. Firoozfar, 2012, Estimating Penman-Monteith Reference Evapotranspiration Using Artificial Neural Networks and Genetic Algorithm: A Case Study, The Arabian Journal for Science and Engineering, Vol. 37, No. 4, 935-944.

[242] Hassanzadeh, H., Eslamian, S. S., Abedi-Koupai, J. and M. Gheysari, 2011, Application of L-moment for evaluating drought indices of cumulative precipitation deficit (CPD) and maximum precipitation deficit (MPD) based on regional frequency analysis, International Journal of Hydrology Science and Technology, Vol. 1, Nos. 1/2, 88–104.

[243] Alipour, M. H., Shamsai, A., Eslamian, S. S. and R. Ghasemizadeh, 2011, A new fuzzy technique to find the optimal solution in flood management, Journal of Flood Engineering, Vol. 2, No. 1, 1-9.

[244] Ghasemizade, M., Mohammadi K., and S. S. Eslamian, 2011, Estimation of design flood hydrograph for an ungauged watershed, Journal of Flood Engineering, Vol. 2, No. 1/2, 27-36.

[245] Dhital, Y. P., Kayastha, R. B. and S. S. Eslamian, 2011, Precipitation and discharge pattern analysis: a case study of Bagmati River basin, Nepal, Journal of Flood Engineering, Vol. 2, No. 1, 49-60.

[246] Saatsaz, M., Sulaiman, W.N.A. and S. S. Eslamian, 2011, GIS DRASTIC model for groundwater vulnerability estimation of Astaneh-Kouchesfahan Plain, Northern Iran, International Journalof Water, Vol. 6, No. 1/2, 1-14.

[247] Saatsaz, M., Chitsazan, M., Eslamian, S. S. and W.N.A. Sulaiman, 2011, The application of groundwater modelling to simulate the behaviour of groundwater resources in the Ramhormooz Aquifer, Iran, International Journal of Water, Vol. 6, Nos. 1/2, 29-42.

[248] Kambona, O. O., Stadel, C. and S. S. Eslamian, 2011, Perceptions of tourists on trial use and management implications for Kakamega Forest, Western Kenya, Journal of Geography and Regional Planning Vol. 4, No. 4, 243-250.

[249] Malekian, R., Abedi-Koupai, J., Eslamian, S. S., Mousavi, S. F., Abbaspour, K. C. and M. Afyuni, 2011, Ion-exchange process for ammonium removal and release using natural Iranian zeolite, Applied Clay Science, Vol. 51, 323–329.

[250] Malekian, R., Abedi-Koupai, J. and S. S. Eslamian, 2011, Influences of clinoptilolite and surfactant-modified clinoptilolite zeolite on nitrate leaching and plant growth, Journal of Hazardous Materials, Vol. 185, 970–976.

[251] Malekian, R., Abedi-Koupai, J. and S. S. Eslamian, 2011, Use of Zeolite and Surfactant Modified Zeolite as Ion Exchangers to Control Nitrate Leaching, World Academy of Science, Engineering and Technology, Vol. 76, 657-661.

[252] Zaky, M. M. M., Salem, M. A. M., Persson, K. M. M. and S. S. Eslamian, 2011, Incidence of Aeromonas species isolated from water and fish sources of Lake Manzala in Egypt, International Journal of Hydrology Science and Technology, Vol. 1, Nos. 1/2, 47–62.

[253] Khorsandi, Z., Mahdavi, M., Salajeghe, A. and S. S. Eslamian, 2011, Neural Network Application for Monthly Precipitation Data Reconstruction, Journal of Environmental Hydrology, Vol. 19, Paper 5, 1-12.

[254] Eslamian, S. S., 2010, The Physically-Statistically Based Region of Influence Approach for Flood Regionalization, Journal of Flood Engineering, Vol. 1, No. 2, 149-158.

[255] Eslamian, S. S., 2010, Flood Regionalization Using a Modified Region of Influence Approach, Journal of Flood Engineering, Vol. 1, No. 1, 51-66.

[256] Eslamian, S. S., Ghasemizadeh, M., Biabanaki, M. and M. Talebizadeh, 2010, A principal component regression method for estimating low flow index, Water Resources Management, Vol. 24, No. 11, 2553-2566.

[257] Amiri, M. J. and S. S. Eslamian, 2010, Investigation of climate change in Iran, Journal of Environmental Science and Technology, Vol. 3, No. 4, 208-216.

[258] Ghazavi, R., Vali, A. B. and S. S. Eslamian, 2010, Impact of flood spreading on infiltration rate and soil properties in an arid environment, Water Resources Management, Vol. 24, No. 11, 2781-2793.

[259] Rajabi, A., Sedghi, H., Eslamian, S. S. and H. Musavi, 2010, Comparison of Lars-WG and SDSM downscaling models in Kermanshah (Iran), Ecol. Env. & Cons., Vol. 16, No. 4, 1-7.

[260] Rahnamai Zekavat, P., Ghasemizadeh, R., Eslamian, S. S. and S. Tarkesh Isfahani, 2010, Journal of Flood Engineering, Vol. 1, No. 2, 175-184.

[261] Chavoshi Borujeni, S., Sulaiman, W. N. A. and S. S. Eslamian, 2010, Regional Flood Frequency Analysis Using L-Moments for North Karoon Basin Iran, Journal of Flood Engineering, Vol. 1, No. 1, 67-76.

[262] Kloub, N., Matouq, M., Krishan, M., Eslamian, S. S. and M. Abdelhadi, 2010, Monitoring of Water Resources Degradation at Al-Azraq Oasis, Jordan Using Remote Sensing and GIS Techniques, International Journal of Global Warming, Vol. 2, No. 1, 1-16.

[263] Akhavan S., Abedi-Koupai, J, Mousavi, S, F., Afyuni, M., Eslamian, S. S. and K. C. Abbaspour, 2010, Application of SWAT model to investigate nitrate leaching in Hamadan–Bahar Watershed, Iran, Agriculture, Ecosystems and Environment, Vol. 139, 675-688.

[264] Eslamian, S. S., Abedi-Koupai, J., Amiri, M, J., and A. R. Gohari, 2009, Estimation of Daily Reference Evapotranspiration Using Support Vector Machines and Artificial Neural Networks in Greenhouse, Research Journal of Environmental Sciences, Vol. 3, No. 4, 439-447.

[265] Eslamian, S. S. and N. Lavaei, 2009, Modelling Nitrate Pollution of Groundwater using Artificial Neural Network and Genetic Algorithm in an Arid Zone, International Journal of Water, Special Issue on Groundwater and Surface Water Interaction (GSWI), Vol. 5, No. 2, 194-203.

[266] Eslamian, S. S. and M. J. Khordadi, 2009, Comparing Rainfall and Discharge Trends in Karkhe Basin, Iran, International Journal of Ecological Economics & Statistics (IJEES), Vol. 15, No. F09, 114-122.

[267] Eslamian, S. S. and B. Nekoueineghad, 2009, A Review on Interaction of Groundwater and Surface Water, International Journal of Water, Special Issue on Groundwater and Surface Water Interaction (GSWI), Vol. 5, No. 2, 82-99.

[268] Eslamian, S. S. and N. Zamani, 2009, Innovations in Wind Modelling, International Journal of Global Energy Issues, Special Issue on Wind Modelling and Frequency Analysis (WMFA), Vol. 32, No. 3, 175-190.

[269] Eslamian, S. S. and H. Hasanzadeh, 2009, Detecting and Evaluating Climate Change Effect on Frequency Analysis of Wind Speed in Iran, International Journal of Global Energy Issues, Special Issue on Wind Modelling and Frequency Analysis (WMFA). Vol. 32, No. 3, 295 – 304.

[270] Eslamian, S. S., 2009, Editorial: Frontiers in Ecology and Environment, International Journal of Ecological Economic & Statistics, Special Issue on Basin Ecology and Environment (BEE), Vol. 13, No. W09, 1-6.

[271] Eslamian, S. S. and M. Biabanaki, 2009, Low Flow Regionalization Models, International Journal of Ecological Economic & Statistics, Special Issue on Stream Ecology and Low Flows (SELF), Vol. 12, No. F08, 82-97.

[272] Eslamian, S. S., 2009, Editorial: An Ecologically Based Low Flow Review, International Journal of Ecological Economic & Statistics, Special Issue on Stream Ecology and Low Flows (SELF), Vol. 12, No. F08, 1-6.

[273] Nosrati, K., Eslamian, S. S., Shahbazi, A., Malekian, A. and M. M. Saravi, 2009, Application of Daily Water Resources Assessment Model for Monitoring Water Resources Indices, International Journal of Ecological Economic & Statistics, Special Issue on Basin Ecology and Environment (BEE), Vol. 13, No. W09, 88-99.

[274] Abedi-Koupai, J., Amiri, M. J., and S. S. Eslamian, 2009, Comparison of Artificial Neural Network and Physically Based Models for Estimating of Reference Evapotranspiration in Greenhouse, Australian Journal of Basic and Applied Sciences, Vol. 3, No. 3, 2528-2535,

[275] Ebrahimizadeh, M. A., Amiri, M. J., Eslamian, S. S., Abedi-Koupai, J. and M. Khozaei, 2009, The Effects of Different Water Qualities and Irrigation Methods on Soil Chemical Properties, Research Journal of Environmental Sciences, Vol. 3, No. 4, 497-503.

[276] Matouq, M., Amarneh, I. A., Kloub, N., Badran, O., Al-Duheisat, S. A. and S. S. Eslamian, 2009, Investigating the Effect of Combustion of Blending Jordanian Diesel Oil with Kerosene on Reducing the Environmental Impacts by Diesel Engine, International Journal of Ecological Economic & Statistics, Special Issue on Basin Ecology and Environment (BEE), Vol. 13, No. W09, 79-87.

[277] Eslamian S. S., Gohari, A., Biabanaki, M. and R. Malekian, 2008, Estimation of Monthly Pan Evaporation Using Artificial Neural Networks and Support Vector Machines, Journal of Applied Sciences, Vol. 7, No. 19, 2900-2903.

[278] Abedi-Koupai J., Eslamian S. S. and J. Asad Kazemi, 2008, Enhancing the available Water Content in Unsaturated Soil Zone using Hydrogel,

to Improve Plant Growth Indices, Ecohydrology and Hydrobiology, Vol. 8, No. 1, 3-11.

[279] Bazgeer, S., Kamali, G. A., Eslamian, S. S., Sedaghatkerdar, A. and I. Moradi, 2008, Pre-Harvest Wheat Yield Prediction Using Agrometeorological Indices for Different Regions of Kordestan Province, Iran, Research Journal of Environmental Sciences, Vol. 2, No. 4, 275-280.

[280] Eslamian, S. S. and H. Feizi, 2007, Maximum Monthly Rainfall Analysis Using L-moments for an Arid Region in Isfahan Province, Iran, Journal of Applied Meteorology and Climatology, Vol. 46, No. 4, 494–503.

[281] Modarres, R., Soltani, S. and S. S. Eslamian, 2007, The Use of Time Series Modeling for the Determination of Rainfall Climates of Iran, International Journal of Climatology, Vol. 27, No. 6, 819–829.

[282] Moradi, I., Nosrati, K. and S. S. Eslamian, 2007, Evaluation of the RadEst and ClimGen Stochastic Weather Generators for Low-Medium Rainfall Regions, Journal of Applied Sciences, Vol. 7, No. 19, 2900-2903.

[283] Modarres R. and S. S. Eslamian, 2006, Streamflow Time Series Modeling of Zayandehrud River, Iranian Journal of Science and Technology, Vol. 30, No. B4, 567-570.

[284] Zareian, M .J., Eslamian, S.S., Safavi, H. R., Eslamian, 2015, A. Effect of Climate Change on Reference Evapotranspiration Based on Weighting Methods, 4th Climate Change Technology Conference, May 25-27, Montreal, Canada.

[285] Zareian, M.J., Eslamian, S.S., Gohari, A. and Hosseinipour, E.Z., 2014, Climate Change Impacts on Reservoir Inflow Using Various Weighting Approaches, World Environmental and Water Resources Congress, USA.

[286] Abdolvandi, A.F., Parsamehr, D., Babazadeh, H., Eslamian, S. and Hosseinipour, E.Z., 2014, Conjunctive Use of Surface and Groundwater Resources Using System Dynamics Approach (Case Study: Namroud Dam), World Environmental & Water Resources Congress, USA.

[287] Kohansal, M. M., Mohamadi, O., Eslamian, S. S. and M. Kohansal, 2014, Inter-basin Transfer and Saving Uremia Lake by Sustainable Development Approach, The 32nd National and the 1st International Geosciences Congress, Uremia, Iran.

[288] Molaei, H., M. M. Kohansal, S. Karamifard, and S. S. Eslamian, 2014, climate change and its influence on the water level of Uremia Lake, The 4th International Conference on Environmental Challenges and Dendrochronologoy, Sari, Iran.

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