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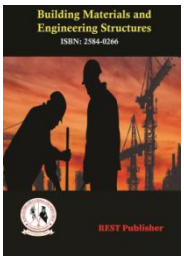

Agricultural Water Productivity Using Weighted Aggregated Sum Product Assessment Method

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Abstract. *Water productivity is a unit of agricultural production for water decrease in the size, of crops, and trees, for livestock and fish can be evaluated. Agriculture water productivity per hectare tons of water or kg consumed kg of water the yield is consumed following) yields on the unit size of the water physical productivity disclosure of crop yields total or net present the yield period will change by value water losses or economic productivity incomplete or excluded water consumption with reference volume (a bank water) per unit block. Water productivity ' per unit crop production ' will be used and defined as a water's number. Agricultural production systems with water the idea that productivity is ' the same more food with water bodies focusing on manufacturing ' or with ' low water bodies production of the same amount of food does. Initially, irrigation performance of methods irrigation ability to describe or water use capacity was used. In terms of agriculture, ' water use capacity ' will produce a plant as the quantity of organic matter is defined. This is, however, the terms used ' water use capacity ' and ' performance ' will not follow the classical concept of it, this is for input and output uses the same units. Therefore, the international water management company (iwmi) ' water use capacity ' to ' water productivity ' until the change of nomenclature is proposed. Analysis purpose, size, and domain step water productivity are many you can define more ways. one unit of water revenue equals one unit of water productivity (wp). More food, more money, a better standard of living, and improved ecosystem services result from increased water productivity. One unit of water revenue equals one unit of water productivity (wp). More food, more money, a better standard of living, and improved ecosystem services result from increased water productivity. It aims to produce contains. Crop, livestock, and water of fisheries in the domains of productivity to improve the size of the basin there is considerable opportunity. This will be used to achieve water harvesting in procedures, sub-watering, lack irrigation, precision techniques for irrigation, and practices for protecting soil and water are included. Soil fertility, pest, and disease management, and improved crop selection getting into markets from improvements like such by the interactive effects obtained water management impacts water directly with productivity related procedures. Benefits of using the Waspas technique weighted sum model (WSM) and weighted product model (WPM). Accuracy of ranking waspas alternatives is increased by integrating wsm and wpm. Wasps are an optimal at this point in the calculation of the additive parameter, which will be discussed in more depth later. The finest solution is the waspas method of analysis, which is outstanding. The long-range solution identifies a better answer than the short distance and negative-best, but a comparison of these distances is not thought to be important.* ***Alternative is*** *Kilograms per cubic meter, Dollars per cubic meter, Protein grams per cubic meter, Calories per cubic meter.* ***Evaluation preference is*** *Cereal Wheat ($0.2 per kilogram), Rice ($0.31 per kilogram), Maize ($0.11 per kilogram), Legumes Lentils ($0.3 per kilogram), Fava beans ($0.3 per kilogram). From the result it is seen that Rice ($0.31 per kilogram) is got the first rank where as is the Fava beans ($0.3 per kilogram) is having the lowest rank. .Rice ($0.31 per kilogram) is ranked first and Fava beans ($0.3 per kilogram) are ranked lowest.*

Keywords: *Water productivity, Rice, Cereal Wheat, Maize, Legumes Lentils.*

1. INTRODUCTION

Frequency of rainfall and/or small in / or size the confusion is the average of rivers in annual discharge significant impacts many studies have shown that announced. Also, nature moderate changes in credits in reservoir storage making big change that pointed out. Energy production, water cycle changes, and flood control strategies water management will be affected by the introduction of adaption strategies. The anthropological climate will change and advance. Sectors will be impacted by national water resources and agricultural usage. Energy production, water cycle changes, and flood control strategies water management will be affected by the introduction of adaption

strategies. The anthropological climate will change and advance. Sectors will be impacted by national water resources and agricultural usage. For example, in iran, the agriculture department is the primary water consumer, thus, in the supply of agricultural water climate change impact inspection and evaluation are necessary [1].The environment and ecosystems due to severe water shortages will be affected. In this study, cmip5 in this region simulations future climate trends were predicted. Future climate change scenarios lower water availability and agriculture water demand is estimated. By increasing temperature irrigation water affected demand over the next 60 years 4.27 – 6.15 in this region increase by billion m3, 1971 – 32.75 in 2000 compared to the need for billions of m3 [2]. Over time climate in reservoirs understanding the impact of change water management and the supply of sustainable water it is an important component of maintenance. In different regions, due to climate change rainfall and water changes in methods reservoir water shortages increase events, and agricultural water bodies are different than future availability affecting. Future climate water supply under conditions to evaluate adaptive capability sustainable in agricultural water management this is a key con for growth cern is. Climate change implications and vulnerability studies on estimates adaptive activities it is an important process for preparation [3]. This article is in south korea adaptation of agricultural reservoirs climate change for efficiency the impact of water supply and sustainability a procedure for evaluating proposes the method of water regarding supply and demand time pro-change analysis theory using reliability analysis. Climate change about there is evidence of events to investigate; potential to evaluate the effects, local under climate change to manage water management results using and modifying the irrigation impact water supply in agricultural reservoirs to evaluate performance irrigation impact assessed; future future conditions reflective climate change using the shots basically future water supply creating strategy recommended ready-made adaptive action [4]. Globally, any resources strategic than water can't be considered. For every citizen wide range of economies and informal sector operations, its final use is necessary. Health, agriculture, and industry are for hydroelectricity essential. The water environment is an important part, and human well-being ultimately depends on many kinds of life homeland. Increasingly as for the requirements, size, and application range as for, in the past water is more than at any time the issue is very much today sensitive [5]. On any other planet on this planet agriculture rather than activity commands more water. The current people of the world to provide adequate freshwater by the hydrologic cycle available total water although the size is sufficient, most of this water accumulated in specific areas, other areas are water-interested. Waterways and global population densities due to random distribution, water demands already more than 40% of the world almost with a population than goods in 80 countries there are too many. In these countries increased population of the future continued, and municipal industrial increased agricultural competition for good quality because the irrigation water supply will further decrease [6]. Agricultural water use efficiency improving drought problems grain production worldwide the most important thing to control in the case of one of the factors very concerned. Crop in water-price areas effectively water for production effective approaches to managing needed. Crop water use capacity and genetic development and by physiological regulation increasing drought tolerance efficient and effective of water achieving the application. Maybe a way. It is light chemical activities preventing and plants functions of enzymes reduces. Between production disturbing the balance development of plants by the way and photosynthesis skills in critical factors that prevent prevention water stress is one of the stress reaction oxygen species and antioxidant protection, reaction oxygen species accumulation, they are proteins, membrane lipids and other cellular antioxidant for components stresses [7]. Applications of water, water usage reduction, agriculture yields, and output pictured are land, crops, their costs, yields, and crop composition. Irrigated agriculture dividing up the economy crop costs. Crop water requirements and actual crop water usage the data microeconomic economy for a theory's empirical analysis profit, crop production, cropland use, water applications, and water removal from the basin should all be incorporated into an appropriate framework [8]. Jim river, south korea basin (9645.5 km ²) <tag1> agricultural irrigation facilities future in water supply capabilities consequences of climate change holistic modeling employing the framework investigated water level water sampling and the network model of water balance (modsim). Exhaustions and from heartsease flows using swat rated, and agricultural to feed the reservoirs the predicted flow was used and in sub-acquires used to amplify the dams. Using a split sampling method, data from six years in three places using daily streamflow and calibrated dam credits, three-year calibration data three following (2005-2007) year verification data (2008 – 2010) [9]. Plant ‘ water in water relations productivity and about the crop for a drop the tendency to speak, water before the 1990s utility the word is commonly used, to be discredited. Whereas rain or irrigation water is always a specific output to ensure the yield multiple inputs and growth one of the conditions, the term productivity is not appropriate, labor, such as land and capital for real production factors to be assigned. Besides, for a unit water input this water productivity in production disclosure and always not meaningful [10]. Less than $ 1 per day 1 billion people live for the livelihoods of more people water is very important, especially 850 million for the rural poor primarily in agriculture engaged. Many will grow in countries, agricultural production is a key to controlling factors, and the world income of rural poor people. Enhanced agricultural water management via a variety of routes it might aid in reducing poverty. First, to ensure reliable access to water production, increase productivity, and expand job opportunities income, and consumption, to second, this will increase other yields using inputs promotes more diversification in value products allows, non-farm publications, and employment upgrades, more many needs of homes complies [11]. For agriculture and the urban sector water exchange between water

marketing to facilitate proposed. Water protection, economic performance and drain and the environment water in pollution reduction market effects micro scale production model are explored using. Currently, agricultural drainage issues and environmental degradation affected california in the valley of san joaquin this is for conditions that exist in the model used [12]. San joaquin sacramento river basin and delta for the export region water assessment developed and planning (weap) use of the system climate change using implications and potential evaluation of adaptation strategies the valley was made. Weap is a combination of rainfall/runoff, water systems are the modeling framework, it is water supplies time series to evaluate from climate input that can be forced directly(water runway) and requests (crop evaporation) [13]. Urbanization driver urbanization with a sustainable growth in water demand comes. This in the past new demand is often for unsolicited water sources to complement by tapping although possible, this option increasing in many regions in terms of unacceptable, any right there if there is unsolicited water will be less. Urbanization the process is a very deep study of urban water, though done capture and allocation processes and critical effectively, the impacts are well not research has been done or not understood [14]. However, water productivity achieving gains regarding scope and simplicity many to be cautious there are reasons. Crop water productivity is already high very much of the manufacturing areas too much, and in yields, available profits (one unit terrain) water productivity translate into gains there is no need to. Irrigation inside the area or a basin the water that happens again use water levels as for the field level for perceived losses can be compensated, water quality although vulnerable. Water productivity in the past crop breeding is increasing despite playing a key role, especially the harvest code by improving, in the future such large gains not easily expected. Most importantly, water productivity farmers and water to improve conditions for managers there is no running. Water productivity biophysical to improve and field, farm, and measurements between the basin the crossing socioeconomic you need an understanding of environments [15].

2. MATERIALS & METHODS

2.1. Kilograms per cubic meter: kilogram per cubic meter it is a density unit and the si system is a unit. For a cubic meter, the kilograms with its weight in kilograms compared to the body represent weight. Kilogram per cubic meter a unit, for example, a cubic centimeter g. In standard cubic meter concrete, this amount of crushed rock the concrete structure of the compound creates, at the same time the size and shape of the aggregates affecting workmanship.

2.2. Dollars per cubic meter: (kubik unit) rectangular parallel tubes to get the size, the piece of its end separation by cost multiply (dimensions can be obtained. Cubic meters cubic for calculator call is an online tool is, given equivalent heavy from heavy foot to find the value of the meter used. Calculator of byju it is simple to calculate calculations a tasteful and transformative tool is. A second of seconds the required value within the area a quick way to find out.

2.3. Protein grams per cubic meter: each protein powder has a slightly different density however, the common change is every 2m.l. Your daily protein intake to determine, your weight multiply 0.36 pounds or this online protein you can use the calculator. 140 pounds of woman weighing and sitting (50 years of exercise) for the woman, this is a day translated into 53 g protein.

2.4. Calories per cubic meter: my common dystopian ™ in the system is within nuclear camps the place is at a premium, so people have food among themselves creative to grow there was a need to come up with ways. It is often three thinking of dimensions includes. For example, above conventional agriculture edible at the point based on the flag foods can be grown, these example is a point for proving purposes only for this question no answers should be affected.

2.5. Cereal wheat ($0.2 per kilogram): in their natural field state grain crops are primarily dust, diseased plants, insects, soil, fertilizers, and from animal droplets for a variety of microorganisms perpetient. Nutritional composition and grain grains neutral ph are microbial optimum feet for growth they form the molecule. Growing and harvesting season temperature, solar light, soil, and general climate microscopic conditions number and types will be affected. In microorganisms, this diversity is grain microorganisms during transport introducing increases, as well as this climate impacts and affected by public health practices.

2.6. Rice ($0.31 per kilogram): rice is the grass-fact oryza sativa (asian rice) or generally o. Kilapirima (seed of african rice). The name wild rice is usually jizania and portarecia used for the types, it is wild and raised, however, the word is primitive or not cultivated types can also be used for orisa. As a grain grain grain, raised rice is the world affecting the human population more than that, especially in asia and most widely in africa the main food consumed is food. For sugar and maize then, in global production, the third highest agricultural products are this. Sugar and substantial maize crops areas other than human consumption because used for purposes, human nutrition and calories rice about intake the most important food crop is, human beings are consumed worldwide one-fifth of calories offers top. Many types of rice and cooking options religions regionally.

2.7. Maize ($0.11 per kilogram): maize (jia mays l) different agro-climate wide adaptive under conditions very versatile with capacity one of the growing crops. Globally, maize grains are known as the queen, because it is between grains with high genetic yield efficiency contains. Of the 160 countries, it is almost 150 m hectares cultivated, which contributes 36 soil, climate, biodiversity, and management procedures contains vast diversity % (

782 m t) in global grain production. Us (us) maize is the largest producer, which is almost the world's total output contributes 35% and maize is the driver of the us economy.

2.8. legumes lentils ($0.3 per kilogram): lentil (lens gulinaris or lens esculenta) an edible pulse. This is for its lens-shaped seeds known as an annual plant. It is about 40 cm at an altitude of (.m) 16 the seeds are in the pods growing up, usually in each there are two seeds. Food as a crop, the biggest producer of canada, the world's total lentils he produces 45% of the category. World for cooking purposes lendils are used throughout. Food of the indian subcontinent in types, lentils are a staple existing, split lentils (often removed with their overtones) known as the dahl often dense curry / commonly rice or eaten with rotis like in the us and europe elsewhere, lentils and used in soups.

2.9. Fava beans ($0.3 per kilogram): visia faba, usually wide bean, fava bean or known as the faba bean, it's a type of watch, peas and in the bean family fabaceae the flowering plant. This is human as a crop for consumption, the cover is also a widely cultivated crop. For horses or other animals small, hard to offer types of seeds field bean, dick bean or dick bean also called. Horse bean, visia faba var. Ekvina perse., as an accepted name a type is approved. These pulses are southern european, north european, east asian, latin american, and north african the most common of the cuisine is food. Some people suffer from pros, a hemolytic for the consumption of broad beans the answer is, it is a metabolism called g6pdd attached to change disorder. Otherwise, beans, outdoor seed coat removed, green, or cook. In young plants eat an external seed coat, in very young plants, seeds eat pod.

2.10. WASPAS (Weighted Aggregated Sum Product Assessment)

In the WASPAS method, two for optimality a composite scale based on criteria searched for. The first criterion of optimality, viz the weighted average success criterion is the WSM method like it is a famous and well the adopted MCDM approach is several several based on decision criteria used to evaluate alternatives. Weighted aggregate product assessment (WASPAS) the methodology consists of eight manufacturing decision-making problems as a useful MCDM tool when solving are investigated, [16]. Cutting fluid, an electroplating system, a forging stage, an arc welding process, an industrial robot, and mach inability of the materials are all used. This strategy has the ability to sort, taking into account all exams' challenges and impairments. Investigation of the WASPAS method's effect of the parameter on ranking performance is also done [17]. The WASPAS approach is a strategy that has evolved through use in a variety of decision-making situations and circumstances. Bagosius et al. (2013) used a multi-criteria selection-making process based on the WASPAS approach to choose the best version of the construction net page for deep sea port. Cutting fluid, an electroplating system, a forging stage, an arc welding process, an industrial robot, and machinability of the materials are all used. This strategy has the ability to sort, taking into account all exams' challenges and impairments. Investigation of the WASPAS method's effect of the parameter on ranking performance is also done [18]. The WASPAS approach is a strategy that has evolved through use in a variety of decision-making situations and circumstances. Bagosius et al. (2013) used a multi-criteria selection-making process based on the WASPAS approach to choose the best version of the construction net page for deep sea port. Advanced an MCDM technique on a reconstructed vernacular constructing the use of AHP address the issue of day lighting and traditional continuity. Hashemkhani solfani et al. (2013) swara hierarchical weight estimation ratio analysis and WASPAS methods using multiple to solve the shopping mall location problem criterion developed approach to decision making. Javadskas et al. (2013a) waspas and moora multi-objective based on ratio analysis validates the robustness of optimization methods. Javadskas et al. (2013b) some public and commercial to evaluate facades of buildings WASPAS method was used [19]. The new MCDM will determine the utility approach is weighted total product evaluation (WASPAS) is called. In WASPAS 2012 recommended for the first time and it is strong in deterministic approaches to new MCDM application is one. [20]. WASPAS formal, ordered fuzzy using numbers (OFNS), which is proposed by zadeh an extension of ambiguity set approach. The concept of OFNS is introduced. Ambiguous as opposed to numbers, arithmetic in this model functions functions of real numbers as such, they a unique case of OFNS. WASPAS approach through zavadskas, turskis, and antucheviciene was created. WASPAS method accuracy is a weighted amount rather than used method or weighted ones recommended product model that it is favorable. Current literature, to consider OFNS in ambiguous WASPAS mode failed and one of the methods mentioned above the concept lacks unifying research [21]. Weighted aggregate product assessment (WASPAS) systematic, downside risks to the project used to assess outcomes. Change compared to independent methods of ranking this method is efficient and highly accurate. Waspas methodology in new multi-index decision making techniques one, it is accepted in many areas is used. In this research, road in iran we identify the risks of the construction project we evaluated, the results of which, access to baroque pits infeasible/irrelevant, during the project life cycle loss of key manpower, inexperienced support hiring contractors among the identified risks are the most important risks [22]. Weighted aggregate product assessment (WASPAS), time usage choice of attendance software including the problem is integrated. Critic approach is a goal for figuring out scale weights methodology, which include depth of version and choice-making a contradiction within the structure of the hassle is protected. Mixing and it's full of alternatives used to rank. Kritik and WASPAS a new based on combination of methods applicability decision making approach of this article to the literature the main contribution is proof [23]. Healthcare outsourcing for 15 different strategies have been developed. QSPM tool and

several standards decision making device WASPAS method integrating an integrated approach to evaluate the strategic options used recommended. Top five best ranking strategic options are QSPM and WASPAS be mindful of using approaches want also, a strong, math-based as the WASPAS method was used, the result was accurate can also be considered reliable [24]. One based on the WASPAS approach the new method was developed with HFS. Experts and various information to calculate scale weights actions are proposed. Changes to the WASPAS technique, HF-operators and scalar weight estimation procedure are carried out. For the inexperienced dealer selection problem the generated method is executed. With HFSS WASPAS method for estimating MCDM problems and an integrated based on information activities. WASPAS the technique is very realistic and the rating is correct strongly attracts the idea of WASPAS approach weighted sum model (WSM) and weighted product model (WPM) uses advantages. At that factor, WASPAS is an highest quality mixture calculates the parameter, that is distinctive later may be given. Many of the WASPAS systems were successful despite the applications, most published works rank ignore the concept of precision, and WSM and composition parameter of wpm on temporal basis is determined. priority areas for implementation of solar energy projects. Current research examines the effectiveness of TSPS intuitive fuzzy weighted aggregate for comparison uses product assessment (if-WASPAS) technique. The proposed method IFSS operators based on more scaled weights a new method of calculating scale weights to calculate, to arrive at more reasonable weights objectivity derived from similarity measure method results with weights expressed by experts we aggregate the subjective weights. Objective new unity for IFSS to calculate weights actions are developed and proposed a variety of harmony activities are elegant demonstrates characteristics [25].

1. RESULT AND DISCUSSION

TABLE 1. Agricultural Water Productivity

	Kilograms per cubic meter	**Dollars per cubic meter**	**Protein grams per cubic meter**	**Calories per cubic meter**
CerealWheat ($0.2 perkilogram)	1.2	0.3	50	660
Rice ($0.31 perkilogram)	1.6	0.2	12	500
Maize ($0.11 perkilogram)	2.0	0.2	200	1000
LegumesLentils ($0.3 perkilogram)	1.0	0.3	90	1060
Fava beans ($0.3 perkilogram)	0.8	0.2	150	1260

Table 1 shows theAlternative: Kilograms per cubic meter, Dollars per cubic meter, Protein grams per cubic meter, Calories per cubic meter Evaluation preference: Cereal Wheat ($0.2 per kilogram), Rice ($0.31 per kilogram), Maize ($0.11 per kilogram), Legumes Lentils ($0.3 per kilogram), Fava beans ($0.3 per kilogram)

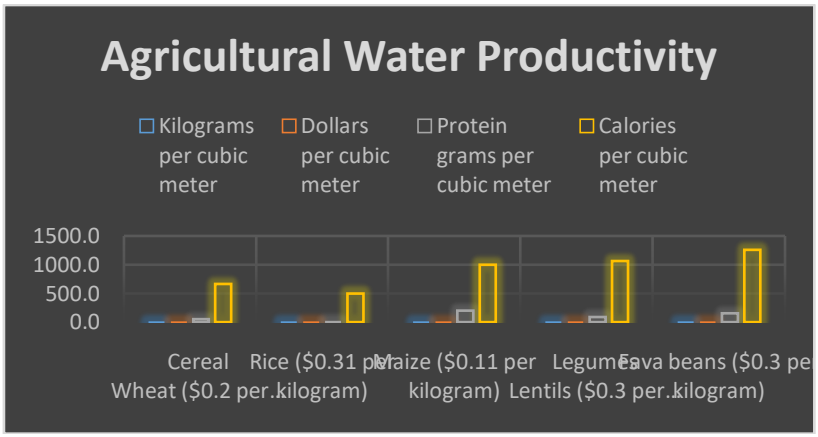

FIGURE 1. Agricultural Water Productivity

According to Figure 1, which displays the kilogrammes per cubic metre, maize ($0.11 per kilogramme) has the highest value while faba beans ($0.3 per kilogramme) have the lowest value. Legumes Lentils ($0.3 per kilogramme), Cereal Wheat ($0.2 per kilogramme), Fava beans ($0.3 per kilogramme), Maize ($0.11 per kilogramme), and Rice ($0.31 per kilogramme) are shown to have the greatest dollar values per cubic metre. Rice ($0.31 per kilogramme) has the lowest value for protein grammes per cubic metre, whereas maize ($0.11 per kilogramme) has the highest value. Fava beans ($0.3 per kilogramme) have the highest caloric density per cubic metre, whereas rice ($0.31 per kilogramme) has the lowest.

TABLE 2. Performance value

Performance value			
0.6	1	0.24	0.757576
0.8	0.6	1	1
1	0.733333	0.06	0.5
0.5	1	0.133333	0.471698
0.4	0.8	0.08	0.396825

Table 2 shows the Performance value is divided by the maximum of the given value

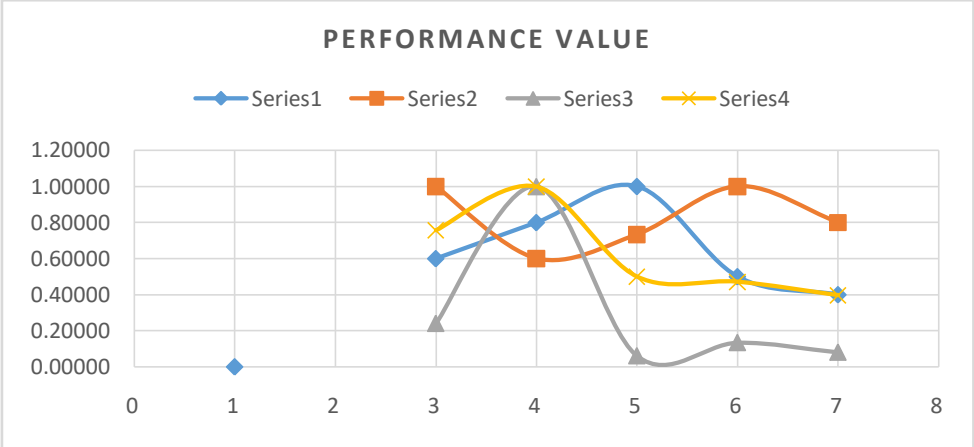

FIGURE 2. Performance value

Figure 2. Performance value shows the Alternative: Kilograms per cubic meter, Dollars per cubic meter, Protein grams per cubic meter, Calories per cubic meter Evaluation preference: Cereal Wheat ($0.2 per kilogram), Rice ($0.31 per kilogram), Maize ($0.11 per kilogram), Legumes Lentils ($0.3 per kilogram), Fava beans ($0.3 per kilogram)

TABLE 3. Weight

Weight			
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25

Table 3 shows the weight of the Agricultural Water Productivity the weight is equal for all the value in the set of data in the table 1. The weight is multiplied with the previous table to get the next value.

TABLE 4. Weighted normalized decision matrix (WSM)

Weighted normalized decision matrix			
0.15	0.25	0.06	0.189394
0.2	0.15	0.25	0.25
0.25	0.183333	0.015	0.125
0.125	0.25	0.033333	0.117925
0.1	0.2	0.02	0.099206

Table 4 shows the weighted normalization decision matrix it is calculated by multiplying the weight and performance value in table 2 and table 3

TABLE 5. Weighted normalized decision matrix (WPM)

Weighted normalized decision matrix			
0.880112	1	0.699927	0.932946
0.945742	0.880112	1	1
1	0.925391	0.494923	0.840896
0.840896	1	0.604275	0.828736
0.795271	0.945742	0.53183	0.793688

TABLE 6. Preference Score WSM & Wpm, WASPAS Coefficient, RANK

	(WSM Weighted Sum Model) Preference Score	(WPM Weighted Product Model) Preference Score	lambda	WASPAS Coefficient	RANK
Cereal Wheat ($0.2 per kilogram)	0.649394	0.574708	0.5	0.612051	2
Rice ($0.31 per kilogram)	0.85	0.832358		0.841179	1
Maize ($0.11 per kilogram)	0.573333	0.385129		0.479231	3
Legumes Lentils ($0.3 per kilogram)	0.526258	0.421108		0.473683	4
Fava beans ($0.3 per kilogram)	0.419206	0.317475		0.368341	5

Table 6 shows the WASPAS Coefficient valuelambda 0.5the final result of this paper the Cereal Wheat ($0.2 per kilogram) is in 2nd rank, Rice ($0.31 per kilogram) is in 1st rank, Maize ($0.11 per kilogram) is in 3rd rank, the Legumes Lentils ($0.3 per kilogram) is in 4thrank, Fava beans ($0.3 per kilogram) is in 5rd rank. The final result is done by using the WASPAS method.

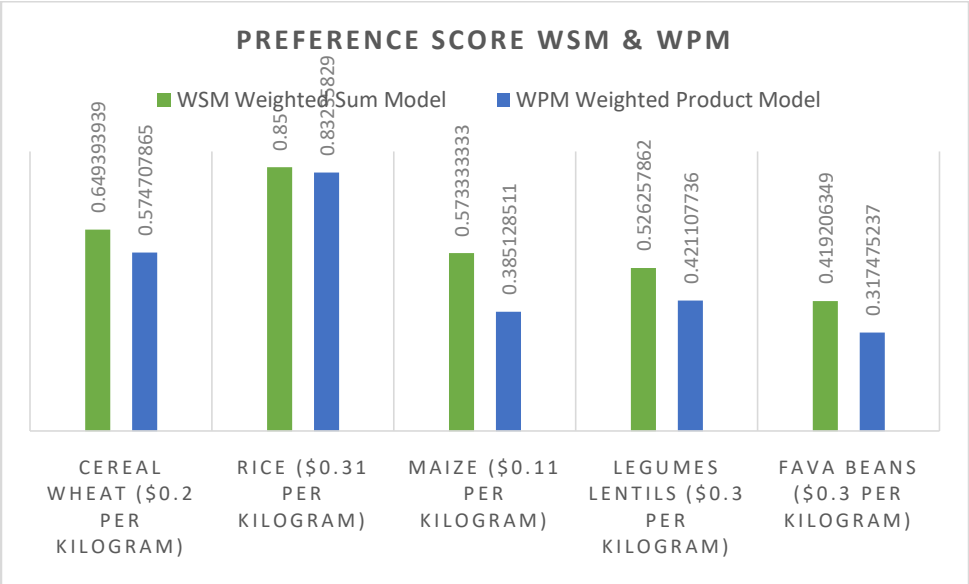

FIGURE 3. Preference Score WSM & Wpm

Figure 3 shows the preference score of WSM Weighted Sum Model it is calculated by the sum of the value on the row of weighted normalized decision matrix. the preference score of WPM Weighted Product Model it is calculated by the product of the value on the row on weighted normalized decision matrix.

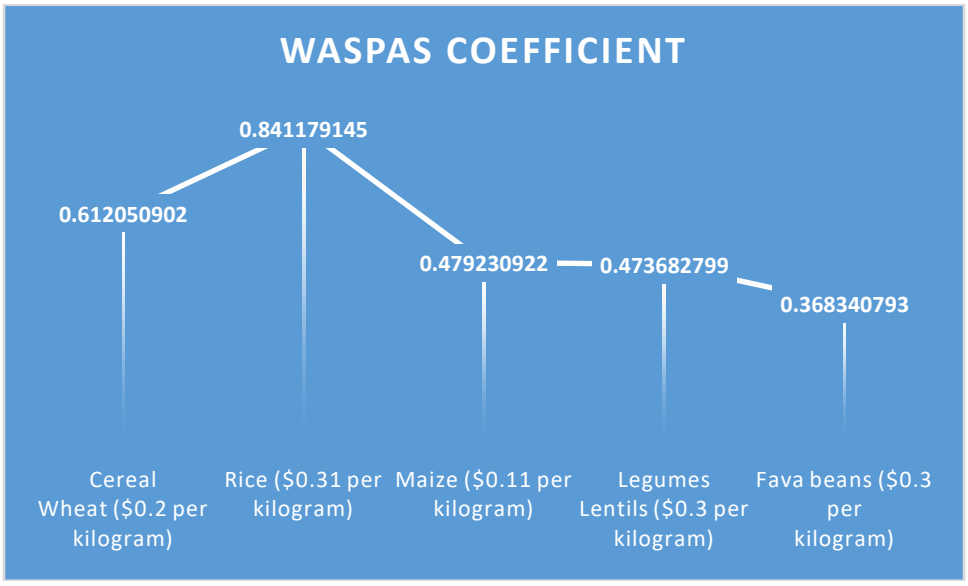

FIGURE 4.WASPAS Coefficient

Figure4. WASPAS Coefficient shows the Cereal Wheat ($0.2 per kilogram) 0.612051, Rice ($0.31 per kilogram) 0.841179, Maize ($0.11 per kilogram) 0.479231, Legumes Lentils ($0.3 per kilogram) 0.473683, Fava beans ($0.3 per kilogram) 0.368341

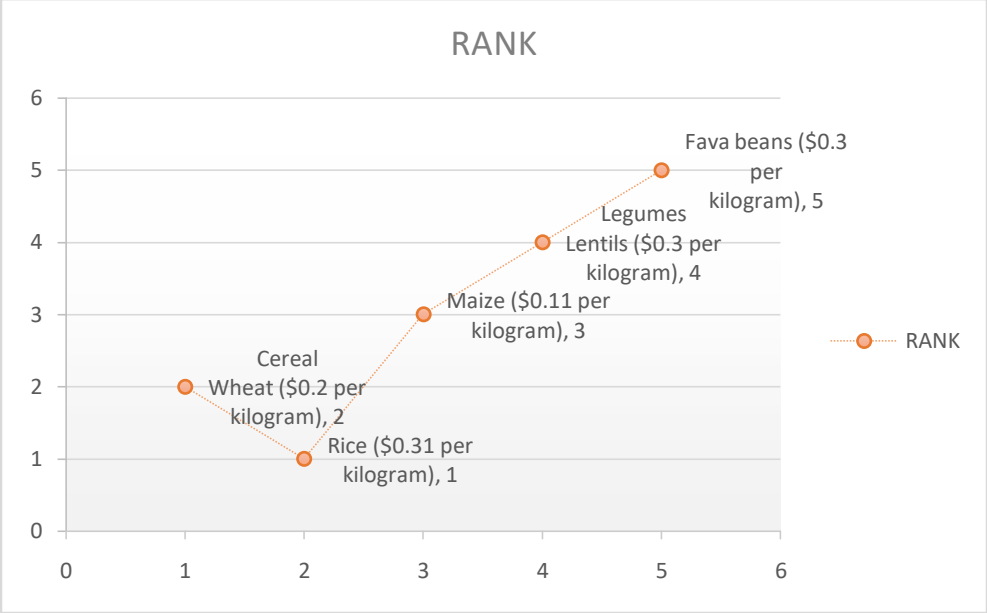

FIGURE 5. Rank

Figure 5 shows the final result of this paper the CerealWheat ($0.2 perkilogram) is in Second rank, Rice ($0.31 perkilogram)is inFirst rank, Maize ($0.11 perkilogram)is in Third rank, the LegumesLentils ($0.3 perkilogram)is in Fourthrank, Fava beans ($0.3 perkilogram)is in Fifth rank. The final result is done by using the WASPAS method.

2. CONCLUSION

Crop, forestry, fisheries, livestock, and mixed from agricultural methods the ratio of net benefits is that to produce benefits the amount of water used. In its broadest sense, it is consumed low for a unit of water social and environmental costs high food, income, livelihood, and environmental benefits objectives of production this is reflected. The class of water productivity equation is water supply r water reduction expressed. When the evaporation is consumed by (et) water decreases, it is incorporated into a product, and it is reduced use immediately flows to an impossible place, r if it is heavily polluted. The water productivity concept separates originated from fields. Crop physicians are first water carbon performance of use integrated and crop as a result, they were defined for a unit transfer, then et's (biomass per unit or marketable yield) the quantity of the product. Water for crops how effectively provided describe the amount of water reduce irrigation professionals the word water use capacity have used. But this is this opinion is only a partial view provides because it is manufacturing benefits made not meant, and by irrigation lost water is often other back by applications whether used not to mention. Water productivity the current focus is the landscape and in aquatic ecosystems used for agriculture benefits and costs of water have evolved to add. In production with other resources involved water shortage compared to increasing wp where it is particularly relevant. Agricultural improving water productivity the reasons are as follows: water in light of the deficit growing up, wealthy and increasingly urbanized food from people increasing demands from agriculture to complement, to complement reallocation of water to cities for pressures to do responding, environment water availability for applications to ensure economic growth and poverty reduction to assist in growth. Regarding the rural poor, intensive water use families may eat well, and high production and income indicate jobs. The amount of water to be removed will be determined by high water productivity. Lowering investment expenses reduction. The need for additional water and land resources in irrigation and precipitation systems is reduced by high water productivity. To ensure economic growth and poverty reduction to assist in growth. Regarding the rural poor, intensive water use families may eat well, and high production and income indicate jobs. The amount of water to be removed will be determined by high water productivity. Lowering investment expenses reduction. The need for additional water and land resources in irrigation and precipitation systems is reduced by high water productivity. Water productivity improving is growing water an important issue for scarcity reflection, in which cities and the growing up of businesses to meet requests to sustain ecosystems in rivers, enough water there is a need to leave. Globally, agriculture is directly additional needed to support gains in

water productivity depends. Without any gain, the average year in the next 50 years of agricultural et doubles. But water in improving productivity global with adequate investments the increase in et is 20 – 30 may be%. Irrigation systems with already reduced water supply pressure to produce more given. Cities and increased the environment due to requests, in response irrigation in many river basins allocations are declining, farmers continue to produce water that can be done increasing productivity efforts to aim needed. The need for an increase, increasing water productivity despite the opportunities, many due to complex contact factors gains are elusive. The purpose of this study is to water the comprehensive productivity concept present the analysis, its identifying promising approaches to progress, and the key to dealing with identifying barriers.

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