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COGNITIVE MODEL OF CLIMATE VARIABILITY AND OF NEGATIVE VARIABILITY IMPACTS FOR HUMAN ACTIVITIES

Abstract: *A cognitive model of climate variability and variability of negative consequences for human economic activity has been developed. The initial data are phrases of the meanings of 4 indicators of climate change (fluctuations in precipitation levels, etc.) and 5 negative indicators (the degree of environmental damage, etc.) of consequences for human activity. The consequences are expressed in the form of negative natural and environmental manifestations that negatively affect the activities of people united in large companies. A system of 4 semantic multidimensional equations of meanings (variability of z-variables and variability of y-variables) is obtained, transmitting the meanings of valid (calculated) and measured (modeled) z-variables introduced (for the cognitive model), forming (when solving the OZ) a cognitive model corresponding to its mathematical model.An example of numerical modeling of the values of variability of climate indicators and negative indicators of human activity gave adequate results. Visual graphic illustrations of the dynamics of the values of 5+4=9 model indicators (Figures 1-8) show their adequacy to real connections in the system "climate change - natural and economic consequences".*

Key words: *cognitive model of climate changes, human, economic activity.*

Language: *Russian*

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КОГНИТИВНАЯ МОДЕЛЬ ИЗМЕНЧИВОСТИ КЛИМАТА И ИЗМЕНЧИВОСТИ НЕГАТИВНЫХ ПОСЛЕДСТВИЙ ДЛЯ ХОЗЯЙСТВЕННОЙ ДЕЯТЕЛЬНОСТИ ЧЕЛОВЕКА

Аннотация: *Разработана когнитивная модель изменчивости климата и изменчивости негативных последствий для хозяйственной деятельности человека. Исходные данные - фразы смыслов 4-х показателей изменений климата (колебания уровня осадков и т.д.) и 5 негативных показателей последствий (степень ущерба экологии и т.д.) для деятельности человека. Последствия выражены в виде негативных природных, экологических проявлений, негативно воздействующих на деятельность людей, объединенных в крупные компании. Получена система из 4-х смысловых многомерных уравнений смыслов (изменчивости z-переменных и изменчивости y–переменных), передающих смысли вводимых (для когнитивной модели) валидных (вычисляемых) и измеряемых (моделируемых) z-переменных, образующих (при решении Оптимизационной Задачи) когнитивную модель, соответствующую своей математической модели.Пример численного моделирования значений изменчивостей показателей климата и негативных показателей деятельности человека дал адекватные реальным. Наглядные графические иллюстрации динамик значений 5+4=9 модельных показателей (Рисунки 1-8) показывают их адекватность реальным связям в системе «изменение климата - природные и хозяйственные последствия».*

Ключевые слова: *когнитивная модель изменений климата, человеческая, экономическая деятельность.*

Введение

Когнитивная модель изменчивостей показателей климата и негативных показателей деятельности человека В записи на блоге «Покончить с нищетой» Генеральный секретарь ООН Пан Ги Мун заявил: «Я всегда считал глобальное потепление проблемой чрезвычайной важности. Теперь же, если не будут приняты меры, я полагаю, что мы окажемся на грани катастрофы»1[1].

Изменение климата – один из вопросов развития. Ввиду возможного воздействия этого явления на многие аспекты жизни человека, сегодня, вероятно, оно представляет собой один из наиважнейших вопросов развития. Негативное воздействие деятельности человека на климат скрывается за высокими заборами промышленных и сырьевых предприятий, а редкие катастрофы, инциденты (вброс в море нефти из буровых платформ, из тонущих танкеров, отравление фауны, флоры океана неустановленными лицами, или при ошибках во время учений, запусков летающих объектов) быстро ликвидируются, но остаются последствия, портящие климат. Негативное воздействие деятельности человека на климат является важнейшей проблемой, эту проблему должны решать люди с другими статусами.

Мы будем исследовать систему «изменение климата - природные и хозяйственные последствия» обладает асимметрией информации и неполными данными. Актуальными являются системные формализованные междисциплинарные теории воздействия деятельности человека на климат и влияния изменений климата на деятельности человека. Пока ограничимся моделированием в системе «изменение климата - природные и хозяйственные последствия»

Имеются разнообразные исследования, посвященные разным аспектам изменения климата Земли, проведенные в рамках разных отраслей знаний. Имеются краткие сжатые в словесные фразы результаты. Среди них выберем результаты, приведенные в материалах Всемирного банка (заказ ООН)[1]. «Богатые страны, которые давно входят в число промышленно развитых, несут основную ответственность за возникновение проблемы изменения климата, в то время как беднейшие общины и страны больше всего страдают от последствий, поскольку, как правило, именно они принимают на себя главный удар сильных наводнений, засух, бурь и других предсказуемых явлений, средств на эффективную борьбу с которыми у них не хватает». По сути, из-за изменения климата, оставляющего людей в нищете, можно потерять то, чего удалось добиться в сфере мирового развития» [1].

Деятельность человека является причиной негативных изменений климата. Измерения показателей изменений климата более доступны (их можно считать полными), чем измерения показателей негативной деятельности одних людей, приведшей к изменению климата. Мы рассматриваем другую группу людей, чья деятельность ухудшилась из-за изменений климата. Мы ниже формализуем сложную систему климат- человек.

Введем показатели деятельности человека и негативных изменений климата, введем параметры, переменные, изменчивости переменных, математические функции, уравнения, системы уравнений, системы многомерных когнитивных уравнений смыслов изменчивости переменных, критерии, функции ограничений, целевую функцию.

Исходные данные - изменения климатических и негативных показателей деятельности человека

Исходными словесными данными являются сведения из из материалов Всемирного банка[1] Главные негативные показатели (валидные переменные модели) деятельности человека, последствия которых ведут в результате к изменению климата Земли. Их перечень состоит из 4-х показателей. Смыслы этих показателей взяты из материалов Всемирного банка[1]

Мы используем ОМ АГК [1], применяем модели когнитивного компьютинга [2]. В математической модели моделируются значения y-переменных, влияющие на значения z-переменных: Y=ZC, где C – матрица собственных векторов $(c_{1j},c_{2j},\ldots,c_{5j})^T$ j=1,…,5. Некоторые ее элементы (приемлемые по абсолютной величине) могут быть назначены нами индикаторами наличия знаний. Опираясь на смыслы 4-х y-переменных и смыслы 5 z-переменных назначим индикаторы в каждой из 4-х собственных векторов. Номер индикатора и их количество определим из исходного списка смыслов 5 z-переменных.

Исходными числовыми данными являются 7 значений «весам»: c_{41}=0.4, c_{12}=0.58, c_{22}=0.36, c_{52}=0.17, c_{13}=0.30, c_{14}=0.25, c_{44}=0.86. Множество индикаторов присутствия извлекаемых знаний образует мозаику {c_{41}=0.4, c_{12}=0.58, c_{22}=0.36, c_{52}=0.17, c_{13}=0.30, c_{14}=0.25, c_{44}=0.86}. Множество из 7 пар индексов элементов матрицы C_{55} индикаторов присутствия знаний образует свою

1 https://www.un.org/ru/youthink/climate.shtml.

мозаику {(4,1), (1,2), (1,4) (2,2), (5,2), (1,3), (1,4), (4,4)}.

Словесные описания изменений климата и последствий для деятельности человека

Словесные описания изменений климата и негативных последствий для хозяйственной деятельности человека нужны для формудирования кратких фраз, передающих смысли вводимых (для когнитивной модели) валидных (вычисляемых) и измеряемых (моделируемых) переменных математической модели.

Словесные описания изменяющихся показателей следующие: колебания температуры, колебания уровня осадков, годовой уровень осадков, происходящих с большими интервалами, в виде гораздо более сильных и кратковременных ливней, вызывающих усиление засух и наводнений, рост интенсивности сильных штормов и ураганов.

Краткие фразы смыслов 5 z-переменных модели должны соответствовать приведенным выше типам изменения климата. Краткие фразы смыслов 5 z-переменных, характеризующих негативные последствия для хозяйственной деятельности человека, присвоим именам-смыслам 5 z-изменчивостей 5 z-переменных:

z_1 – увеличение степень негативного воздействия на сельское хозяйство в тропиках и субтропиках (угроза продовольственной безопасности);

z_2 - дальнейшее уменьшение количества воды и ухудшение ее качества в регионах, где бедные общины зависят от дождевой воды, используемой для полива зерновых и для питья;

z_3 -увеличение степени распространения малярии, лихорадки денге и других болезней в тропических и субтропических регионах (там, где здравоохранение и без того плохо развито, произойдет повышение уровня смертности);

z_4 -увеличение степени ущерба экологическим системам и биологическому разнообразию в них (что повлечет за собой сокращение возможностей отношении обслуживания, обеспечения средств к существованию и сокращение доходов).

z_5 -увеличение относительного уровнння (подъема уровня моря), вызванным ожидаемым повышением температуры.

Теперь переформулируем смыслы 4-х y–переменных для когнитивного (познавательного) их соответствия вышеприведенным смыслам 5 z-переменных, входящих в каждый из смыслов 4-х y–переменных. Смысли-имена y–переменных:

1)Колебания температуры (y_1). По смыслу y_1 оказывает заметное влияние на показатель «степень ущерба экологическим системам и биологическому разнообразию в них» (z_4). Назначим значение «веса» равным c_{41}=0.4.

2) **Колебания уровня осадков (y_2).** По смыслу y_2 оказывает заметное влияние на показатель «степень негативного воздействия на сельское хозяйство» (z_1), уменьшение количества воды и ухудшение ее качества в регионах (z_2), относительный уровень подъема уровня моря (z_5). Назначим значение «весов» : c_{12}=0.58, : c_{22}=0.36, c_{52}=0.17.

3) Годовой уровень осадков, происходящих с большими интервалами, в виде гораздо более сильных и кратковременных ливней, вызывающих усиление засух и наводнений (y_3). Формула изменчивости y–переменной №3 имеет вид $y_{i3}=z_{i1}*c_{13}+z_{i2}*c_{23}+\ldots+z_{i5}*c_{53}$. По смыслу этот валидный показатель заметно влияет на изменчивость z_{i1} «степени негативного воздействия на сельское хозяйство» (с «весом» c_{13}). Номеру 3 y-переменной в матричной математической модели Y=ZC соответствует равенство $y_{i3}=z_{i1}*c_{13}+z_{i2}*\ c_{23}+\ldots+z_{i5}*c_{53}$, с коэффициентами, равными компонентам $c_{13},c_{23},\ldots,c_{53}$ 3-го собственного вектора $(c_{13},c_{23},\ldots,c_{53})^T$.

4) Степень роста интенсивности сильных штормов и ураганов (y_4). Этот валидный показатель заметно влияет на показатель «степень негативного воздействия на сельское хозяйство» (z_1), «степень ущерба экологическим системам и биологическому разнообразию в них» (z_4), на показатель «относительный уровень подъема уровня моря» (z_5). Показатель y_4 имеет более привычный смысл скорости ветра (изменчивость расстояний за единицу времени ds/dt). Интенсивности сильных штормов с меняющимися скоростями создают разные ускорения скоростей ветра и ураганов (dv/dt-объем воды за единицу времени). Этот валидный показатель заметно влияет на показатель «степень негативного воздействия на сельское хозяйство» (z_1), на показатель «относи тельный уровень подъема уровня моря» (z_5).

Множество приемлемых значений индикаторов присутствия извлекаемх знаний

Показателям мзменений климата мы в модели поставили в соответствие 4 y–переменные и содержат 1 или несколько индикаторов (например, y–переменной №1 соответствуют 3 индикатора $c_{11}=corr(z_1,y_1)$,$c_{21}=corr(z_2,y_1)$, $c_{51}=corr(z_5,y_1)$, присутствия знаний для некоторых из 5 z-переменных, входящих в каждый из смыслов 4-х y–переменных.

Выше мы назвали номера z-переменных, образующих 1-ый индекс индикатора c. Для элементов матрицы C_{55} зафиксируем индексы и

величины 7 индикаторов с выделенными индексами.

Назначим значения «весам»: c_{41}=0.4, c_{12}=0.58, c_{22}=0.36, c_{52}=0.17, c_{13}=0.30, c_{14}=0.25, c_{44}=0.86. Множество индикаторов присутствия извлекаемых знаний образует свою мозаику {c_{41}=0.4, c_{12}=0.58, c_{22}=0.36, c_{52}=0.17, c_{13}=0.30, c_{14}=0.25, c_{44}=0.86}. Множество из 7 пар индексов элементов матрицы C_{55} индикаторов присутствия знаний образует свою мозаику {(4,1),(1,2),(1,4) (2,2),(5,2),(1,3),(1,4),(4,4)}. Не все элементы матрицы C_{55} являются индикаторами присутствия знаний, а значения им мы присвоили, руководствуясь двумя правилами. После решения Оптимизационной Задачи возможно появление других индикаторов.

Два правила при назначении значений 7 индикаторов. Первое правило: валидный y-показатель заметно или иначе влияет на z-показатель. Например, смысл валидного y-показателя «степень роста интенсивности сильных штормов и ураганов» (y_4) включает в свой смысл z-показателя «степень негативного воздействия на сельское хозяйство» (z_1) и смыслы других z-показателей z_4 и z_5. Схема этого включения: $y_4 \leftarrow\{ z_1,z_4,z_5\}$.

Второе правило: значения индикаторов таковы, что их совокупность и совокупность остальных элементов матрицы C_{55} (они изменяются при решении Оптимизационной Задачи) удовлетворяют условиям $C_{55}C^T_{55}=I_{55}$. $C_{55}C^T_{55}=I_{55}$ для матрицы C_{55} собственных векторов.

{c_{41}=0.4, c_{12}=0.58, c_{22}=0.36, c_{52}=0.17, c_{13}=0.30, c_{14}=0.25, c_{44}=0.86} образует мозаику, отличающуюся от мозаик из других матриц индикаторов [3-6]. Мозаика наша и ее 2 правила формирования мы реализовали, существенно используя 1) словесные знания из материалов ООН[1] и 2)эмпирические приемы подбора значений {c_{41}=0.4, c_{12}=0.58, c_{22}=0.36, c_{52}=0.17, c_{13}=0.30, c_{14}=0.25, c_{44}=0.86} для получения требуемого решения. Наши значения наших индикаторов являются допустимыми, а не заметными по величине (они выявляются после решения Оптимизационной Задачи, Таблица 2, матрица C_{55}).

В этом состоит отличие нашей когнитивной модели от прежних [3-17]. Мы вынуждены применять, второе правило, так как наша цель – решить задачу, а не констатировать отсутствие метода решения. Тот, кто хочет решить задачу, а не утверждать об отсутствии точного решения, применяет эмпирические приемы, привносящие погрешности. Нам нужно решить задачу, а не обосновывать отсутствие точного решения. Мы разрабатываем когнитивную познающую многомерную модель, состоящую из системы смысловых уравнений. Система смысловых уравнений формируется из системы математических уравнений вида $Y_{m5}=Z_{m5}C_{55}$, связывающих изменчивости y-переменных Y=ZC, $C_{55}C^T_{55}=I_{55}.C_{55}C^T_{55}\neq I_{55}$ $y_{i3}=z_{i1}*c_{13}+z_{i2}*c_{23}+\ldots+z_{i5}*c_{53}$, i=1,…,m, с изменчивостями z-переменных, соответствуют компоненты $c_{13},c_{23},\ldots,c_{53}$ 3-его собственного вектора $(c_{13},c_{23},\ldots,c_{53})^T$. Аналогичные пояснения о связывающих изменчивостях других y-переменных.

Каждый из этих показателей (y-переменных) изменений климата равен сумме других показателей (z-переменных) с соответствующими «весами» и изменчивостями «весов». Этим мы выражаем связь между изменениями климата и последствиями изменения климата. Последствия выражены в виде негативных природных, экологических факторов, воздействующих на деятельность людей, объединенных в крупные компании.

Ниже в разрабатываемой модели будут введены параметры и переменные (разнообразные по типу интрпретации), численно отображающие разнообразие и обширность видов зависимости, взаимосвязи. Исходными данными являются индикаторы.

Множество приемлемых значений индикаторов присутствия знаний принадлежат множеству индексов матрицы C_{55} собственных векторв. Матрица C_{55} связывает 2 матрицы изменчивости z-переменных (Z_{m5}) и изменчивости y –переменных (Y_{m5}). Последствия (изменчивости z -переменных) проявляются в вышеперечисленных негативных показателей результатов деятельности человека. Изменчивости 5 z -переменных входят в изменчивость соответствующей j-ой валидной y–переменной со своими коэффициентами $c_{1j},c_{2j},\ldots,c_{5j}$: $y_{ij}=z_{i1}*c_{1j}+z_{i2}*c_{2j}+\ldots+z_{i5}*c_{5j}$, j=1,…,4. формуле $y_{ij}=z_{i1}*c_{1j}+z_{i2}*c_{2j}+\ldots+z_{in}*c_{nj}$, присутствует смысловое уравнение. Неизвестная изменчивость y_{i1} (в момент времени $i\in\{1,2\ldots,m\}$) переменной y_1 вычисляется при известных смыслах неизвестных значений изменчивости z-переменных z_1,z_2,z_3,z_4,z_5 с известными смыслами смысл(y_{i1})=смысл(z_{i1})*c_{k1}+смысл(z_{i2})*c_{k2}+ смысл(z_{i3})*c_{k3}+смысл(z_{i4})*c_{k2}+смысл(z_{i5})*c_{k3}, k=1,2,3,4.

Смысл y_j равен сумме смыслов z-переменных $z_{i1},z_{i2},\ldots,z_{in}$.Иена-смысли z-переменных z_1,z_2,z_3,z_4,z_5 приведены выше. Условие вхождения смыслов z-переменных в смысл той или иной y -переменной выполнено.

Собственные векторы симметрической матрицы

Собственные векторы неиспользуемой симметрической матрицы $R_{55}=C_{55}\Lambda_{55}C^T_{55}$,

моделируются при решении Оптимизационной Задачи, исходя из матрицы собсвенных чисел и матрицы I_{55} собственных векторов. Полученная матрица C_{55} собсвенных векторов такая, что: $C_{55}C^{T}_{55}=I_{55}$, $C^{T}_{55}C_{55}=I_{55}$, $c_jc^{T}_j=c^{T}_jc_j=(1.00000, 1.00000, 1.00000, 1.00000, 1.00000)$, j=1,…,5.

В этой модели моделируются собственные векторы неиспользуемой симметрической корреляционной матрицы. В статье [3] моделировались псевдособственные векторы [1,17,28] несимметрической матрицы W_{33} ($W_{33}=C^{+}_{33}\Lambda_{33}C^{+T}_{33}$,). Матрица C^{+}_{33} псевдособственных векторов моделировалиь при решении Оптимизационной Задачи, [1], исходя из матрицы собственных чисел $\Lambda_{33}=diag(\lambda_1,\lambda_2,\lambda_3)$ и некоторой матрицы C_{33} собственных векторов неизвестной симметрической матрицы. Матрица C_{33} собственных векторов была такой, что: $C_{33}C^{T}_{33}=I_{33}$, $C^{T}_{33}C_{33}=I_{33}$, а матрица C^{+}_{33} псевдособсвенных векторов стала такой, что: $C^{+}_{33}C^{+T}_{33}=I_{33}$, $C^{+T}_{33}C^{+}_{33}\neq I_{33}$. Если известна несимметрическая матрица, W_{33}, то Прямая Задача $W_{33}=>(\Lambda_{33},C^{+}_{33})$ не имеет решения. W_{33} – несимметрическая матрица ковариаций изменчивостей нестандартизованных z-переменных (z_{kj}-изменчивостей, k=1,…,m, j=1,…,n).

В описываемой ниже моели собственные векторы являются предпочтительными. Исходными данными является множество из 7 элементов матрицы C55 - индикаторов присутствия знаний. Они являются индикаторами присутствия знаний, значения им мы присваиваем руководствуясь двумя правилами. А значения остальных элементов матрицы C55 моделируются при решении Оптимизационной Задачи, после решения Оптимизационной Задачи: ($\Lambda_{55}=I_{55}$, $C_{55}=I_{55}$)=>(Λ_{55},C_{55}), где $I_{55}=C_{55}$ начальная матрицы собственных векторов, $I_{55}=\Lambda_{55}$ –начальная матрица (диагональная) матрица, такая, что $C_{55}C^{T}_{55}=I_{55}$, $C^{T}_{55}C_{55}=I_{55}$.

Поставим в соответствие с этими коэффициентами корреляции corr(z,y) «весомости парных (z,y)-связей между z-показателем и y-показателем» формальное условие «замкнутости» системы показателей $c^2_1+c^2_2+c^2_3+c^2_4+c^2_5=1$. Это равенство – условие для 5 значений первых компонент 5 собственных векторов: $c^2_{11}+c^2_{12}+c^2_{13}+c^2_{14}+c^2_{15}=1$. другие компоненты 5 собственных векторов также подчиняются аналогичным равенствам.

«Понятия собственного вектора и собственного числа являются одними из ключевых в линейной алгебре, на их основе строится множество конструкций. Это связано с тем, что многие соотношения, связанные с линейными операторами (преобразованиями), существенно упрощаются в системе координат, построенной на базисе из собственных векторов оператора. Множество собственных значений линейного оператора (спектр оператора) характеризует важные свойства оператора без привязки к какой-либо конкретной системе координат. Понятие линейного векторного пространства не ограничивается «чисто геометрическими» векторами и обобщается на разнообразные множества объектов» [3].

Множество всех собственных векторов линейного оператора (преобразования), соответствующих данным собственным числам, дополненное нулевым вектором, называется псевдособственным подпространством этого оператора. Поэтому множество ценовых предпочтений индивидов не единственно. Мы ниже нашли одно из решений C_{55} Оптимизационной Задачи.

В рассматриваемом ниже примере собственные векторы показали свои замечательные свойства. Матрица $Z_{m5}=Y_{m5}C^{T}_{55}=[\mathbf{z}_i.]$ содержит в качестве своих элементов значения искомых изменчивостей, Точки $\{\mathbf{z}_i.\}$,i=1,…,m, вписаны в эллипсоид. Длины полуосей эллипсоида, содержащего точки (z_{i1},z_{i2},z_{i5}), i=1,…,m, равны $\Delta_{55}=diag(0.9784, 0.7080, 1.5501, 0.509697478, 1.9602, 0.520504656, 0.0255)$. Направляющими векторами полуосей гиперэллипсоида являются 5 взаимно перпендикулярные векторы – собственные векторы с единичными длинами. Координаты в декартовой системе координат являются компонентами 5 собственных векторов, объединенных в матрицу C_{55}. Наша полученная в результате решения Оптимизационной Задачи матрица собственных векторов C_{55} обладает свойством ортогональности, но не свойством ортонормированности: $C_{55}C^{T}_{55}=I_{55}$, $C^{T}_{55}C_{55}=I_{55}$. Сумма длин полуосей эллипсоида и сумма длин собственных векторов равны 5: $\Delta_{55}=diag(0.9784, 0.7080, 1.3301, 1.9602, 0.0233)$, 0.9784+0.7080+1.3301+1.9602+0.0233=5.
Диагональная матрица $\Lambda_{55}=diag(0.9784, 0.7080,1.3301,1.9602,0.0233)$ является спектром неиспользуемой нами симметрической матрицы R_{33}, полученной при решении Оптимизационной Задачи.

Наш процесс вычисления матрицы C_{55} изобрзим так: (I_{55},I_{55})=>(Λ_{55},C_{55}), где I_{55} начальная матрица собственных векторов, I_{55} –диагональная матрица, такие, что $C_{55}C^{T}_{55}=I_{55}$, $C^{T}_{55}C_{55}=I_{55}$. Обратная Спектральная Задача(I_{55},I_{55})=>(Λ_{55},C_{55}), где $C_{55}C^{T}_{55}=I_{55}$, $C^{T}_{55}C_{55}=I_{55}$, C_{55} - матрица собственных векторов. Матрицам (Λ_{55},C_{55}) соответствует матрица Y_{mn} значений изменчивости некоррелированных y–переменных y_1,y_2,y_3,y_4,y_5 с дисперсиями $disp(y_1)=\lambda_1$, $disp(y_2)=\lambda_2$, $disp(y_3)=\lambda_3$, $disp(y_4)=\lambda_4$, $disp(y_5)=\lambda_5\approx 0$. Матрица Y_{mn} такова, что $(1/m)Y^{T}_{mn}Y_{mn}=\Lambda_{55}$,

$\lambda_1+\lambda_2+\lambda_5+\lambda_4+\lambda_5=5$, далее матрица Y_{m5} преобразуется матрицей C^T_{55} собственных векторов в матрицу значений изменчивости коррелированных z–переменных $z_1,z_2,\ldots,z_5$ $Z_{m5}=Y_{m5}C^T_{55}$.

Вычислительная трудность нашей модели – моделирование матрицы C_{55} собственных векторов и матрицы собственных чисел Λ_{55}. Если известна ортонормированная матрица C_{55}, то моделируем матрицу изменчивости y-переменных y_1,y_2,y_3,y_4,y_5 Y_{mn}: $\Lambda_{55}=(1/m)Y^T_{m5}Y_{mn5}$ затем - матрицу изменчи востиz-переменных z_1,z_2,z_3,z_4,z_5 $Z_{m5}=Y_{m5}C^T_{55}$. Далее динамики значений 9=4+5 переменных проверяя ются на адекватности реальным динамикам показателей изменений климата (Рисунки 4-8).

Когнитивная модель изменчивостей показателей климата и негативных показателей деятельности человека

Введем обозначения переменных и формализуем все 4+5=9 словесных имен-смыслов y-переменных y_1,y_2,y_3,y_4, а смысл переменной y_5 оставим без привязки смысла, ибо индекс №5 y-переменной y_5 не входит в мозаику индикаторов, назначили по одной компоненте во всех 5-х будущих псевдособственных векторах, но нет ни одной компоненты из 5-го собственного вектора. словесное утверждение (смысл «колебания уровня температуры» зависит в разной степени от 5 факторов $z_1,z_2,\ldots,z_5$ - степень негативного воздействия на сельское хозяйство (z1), уменьшение количества воды и ухудшение ее качества в регионах (z2), степень распространения малярии, лихорадки и других болезней (z_5), степень ущерба экологическим системам и биологическому разнообразию в них(Z4), относительный уровень подъема уровня моря (Z5). Значения и знаки величин c_{1j}, $c_{2j},\ldots,c_{5j}$, j=1,…,4.

Для формулы $y_{ij}=z_{i1}*c_{1j}+z_{i2}*c_{2j}+\ldots+z_{in}*c_{nj}$, смысл y_j равен сумме смыслов z-переменных $z_{i1},z_{i2},\ldots,z_{in}$ назначим разными. Этим мы фиксируем наличие 4-х y–переменных с не обязательно убывающими по величине дисперсиями (ранее во всех приложениях ОМ ГК предполагалось монотонное убывание [1.5-17]) $disp(y_1)=\lambda_1$, $disp(y_2)=\lambda_2$, $disp(y_5)=\lambda_5$, $disp(y_4)=\lambda_4$. Каждая y–переменная y_1,y_2, …,y_4 должна быть линейной комбинацией 5-х z–переменных с коэффициентами, равными значениям компонент собственных векторов. Указанное доминирование не выполнено, но зато найдена матрица C_{55} собственных векторов и матрица собственных чисел Λ_{55}=diag(0.9784, 0.7080, 1.3301, 1.9602, 0.0233). Это позволило провести расчеты при отсутствии теоремы существования решений нашей Оптимизационной Задачи.

Мы будем руководствоваться смысловыми содержаниями 4-х сдовесных «закономерносей климата».Назначим заданным смыслам из 4 смыс ловых уравнений для неизвестных изменчивостей $z_{i1},z_{i2},z_{i3},z_{i4},z_{i5},y_{i1}$ при известных«весах» c_{1j},c_{2j},c_{3j}, c_{4j},c_{5j}:$z_{i1}*c_{1j},z_{i2}*c_{2j},z_{i3}*c_{3j},z_{i4}*c_{4j},z_{i5}*c_{5j}$, вида смысл $(z_{i1})*c_{1j}$+смысл$(z_{i2})*c_{2j}$+смысл$(z_{i3})*c_{3j}$+смысл$(z_{i4})*c_{4j}$ + смысл$(z_{i5})*c_{5j}$=смысл(y_{i1}), i=1,…,m, целое число m – количество интервалов времени.

Мы сделали шаг этапа перехода от словес ного описания в когнитивному описанию. Это многомерное когнитивное уравнение [1-2] известных когнитивных смыслов неизвестных изменчивостей z-переменных с правой частью. Постоянные параметры c_{11},c_{21},c_{51} многомерного когнитивного уравнения имеют интерпретацию коэффициента корреляции: $c_{11}=corr(z_1,y_1)$,$c_{21}=corr(z_2,y_1)$,$c_{51}=corr(z_5,y_1)$.Они являются неизвестны ми компонентами 1-го собственного вектора $\mathbf{c_1}=(c_{11},c_{21},c_{51})^T$ неизвестной матрицы C_{55} собственных векторов, имеющей известную диагональную матрицу собственных чисел Λ_{55}=diag($\lambda_1,\lambda_2,\ldots,\lambda_5$). Этой системе многомерных когнитивных смыслов изменчивостей 5 z-переменных и 5 y-переменных (5-ая y-переменная имеет нулевую дисперсию, отсутствует в системе смысловых уравнений) соответствует математическая модель: $Y_{m5}=Z_{m5}C_{55}$.

Когнитивная модель изменчивостей 4 показателей климата и 5 негативных показателей деятельности человека состоит из математической модели вида $Y_{m5}=Z_{m5}C_{55}$, $C_{55}C^T_{55}=I_{55}$, $C^T_{55}C_{55}=I_{55}$, C_{55} - матрица собственных векторов. Λ_{55}=diag(0.9784,0.7080,1.3301,1.9602,0.0233), 0.9784+0.7080+1.3301+1.9602+0.0233)=5. Диагональная матрица Λ_{55}=diag(0.9784,0.7080,1.3301,1.9602,0.0233) является спектром неиспользуемой нами симметрической матрицы R_{33}, полученной при решении Оптимизационной Задачи соответствует матрица Y_{mn} значений изменчивости некор релированных y–переменных Матрица Y_{mn} значений изменчивости некоррелированных y–переменных y_1,y_2,y_3,y_4,y_5 с дисперсиями $disp(y_1)=\lambda_1$, $disp(y_2)=\lambda_2$, $disp(y_3)=\lambda_3$, $disp(y_4)=\lambda_4$, $disp(y_5)=\lambda_5\approx0$ подчиняется равенству $(1/m)Y^T_{mn}Y_{mn}=\Lambda_{55}=\Delta_{55}$=diag(0.9784,0.7080,1.3301, 1.9602, 0.0233), $\lambda_1+\lambda_2+\lambda_5+\lambda_4+\lambda_5=5$, а матрица значений изменчивости 5 коррелированных z–переменных $z_1,z_2,\ldots,z_5$ равна матрице $Z_{m5}=Y_{m5}C^T_{55}$. Матрица Z_{m5} равна матрице значений Y_{m5}, преобразованной с помощью матрицы C^T_{55} собственных векторов, $Z_{m5}=Y_{m5}C^T_{55}$. В столбцах матрицы Y_{m5} расположены значения y–переменных y_1,y_2,y_3,y_4,y_5 с дисперсиями $disp(y_1)=\lambda_1$, $disp(y_2)=\lambda_2$, $disp(y_3)=\lambda_3$, $disp(y_4)=\lambda_4$, $disp(y_5)=\lambda_5\approx0$. при этом $(1/m)Y^T_{mn}Y_{mn}=\Lambda_{55}$, $\lambda_1+\lambda_2+\lambda_5+\lambda_4+\lambda_5=5$, матрица Y_{m5} преобразуется

матрицей C^T_{55} собственных векторов из матрицы значений изменчивости некоррелированных y–переменных (показателей климата) в матрицу значений изменчивости коррелированных z–переменных (негативных показателей деятельности человека) $z_1,z_2,\ldots,z_5$ $Z_{m5}=Y_{m5}C^T_{55}$.

Если мы знаем данные показателей портящегося климата и знаем значения (через значения элементов матрицы C_{55}) их влияния на показатели вредной деятельности человека, то мз нашей модели можно узнать об величинах отклонений показателей деятельности человека от безвредного состояния.

Независимость или корректность данных об изменениях показателей климата осуществляет сеть метеостанций и исследователи. Труднее определяются значения элементов матрицы C_{55}.

Если разработать методику применения данной модели и реализовать на практике,то будем иметь данные отклонений $Z^{(t,\ell)}_{m5}=Y^{(t)}_{m5}C^{T(\ell)}_{55}$ m=24 или 36 или 48, показателей деятельности человека от безвредного состояния, ℓ- номер сценария расчетов значения элементов матрицы C_{55}.

В нашей модели знание значений элементов пары матриц (Λ_{55},C_{55}) моделирует матрицу значе ний изменчивости некоррелированных y–пере менных (показателей изменения климата) $\Delta_{55}=(1/m)Y^T_{m5}Y_{mn5}$ затем - матрицу значений изменчивости коррелированных z–переменных (негативных показателей деятельности человека) $z_1,z_2,\ldots,z_5$ $Z_{m5}=Y_{m5}C^T_{55}$.

Извлечение цифровых знаний из числовых реальных данных – это превращение данных в значимую информацию за счет применения разработанной математической модели и многомерных уравнений когнитивных смыслов изменчивостей переменных, направленных на получение адекватности к требуемой ситуации.

В итоге получим систему климатических изменений и их последствий для деятельности человека. Получим систему из 4-х смысловых многомерных уравнений смыслов (изменчивости z-переменных и изменчивости y –переменных), передающих смыслы вводимых (для когнитивной модели) валидных (вычисляемых) и измеряемых (моделируемых) переменных, образующих когнитивную модель, соответствующую своей математической модели.

В математической модели постоянные параметры $c_{1j},c_{2j},\ldots,c_{5j}$ («веса» проявлений 5 показателей) должны быть (кроме 7 индикаторов) неизвестными компонентами (до решения Оптимизационной Задачи) и известными компонентами (после решения Оптимизационной Задачи) j-го собственного вектора $cj=(c_{1j},c_{2j},c_{5j})^T$. Они (элементы матрицы C_{55} (z,y)-корреляций), кроме приведенной математической интерпретации: $c_{11}=corr(z_1,y_1)$, $c_{21}=corr(z_2,y_1)$, $c_{51}=corr(z_5,y_1)$, имеют когнитивную интерпретацию – являются индикаторами присутствия извлекаемых знаний. Матрица C_{55}, содержащая 7 индикаторов, моделируется численно при решении Оптимизационной Задачи(смотрите ниже). Компоненты $(c_{11},c_{21},c_{51})^T$ относим к изменчивостям разных валидных показателей (переменных) y_1,y_2,y_5, а относим к изменчивости одной y–переменной y_1:$c_{11}=corr(z_1,y_1)$, $c_{21}=corr(z_2,y_1)$, $c_{51}=corr(z_5,y_1)$, соответствующей изменчивостям всех z–переменных.

Эти детали отличаются от деталей прежних оптимизационных задач [8-19]. Изменчивость z-переменной равна величине z_i в отклонении $z_i=(z_i-0)$ модельного значения z_i от среднего значения 0 [14]. Для j-ой z-переменной присуще значение z_{ii} изменчивости, i=1,…,m, где m – количество моментов времени. Значения z_{ii} и 0 определены для совокупности значений $z_{ij}=(z_{ij}-0)$, если $z_{ij}>0$, i=1,…,m. Существует связь между парами изменчивостей $z_{ki}=r_{ij}z_{kj}$, $r_{ij}=corr(z_i,z_j)$, k=1,…,m; i=1, …,n; j=1,…,n, для пары номеров (i,j) z-переменных [15-17].

Если знак значения z_{ikj}, $k\in\{1,\ldots,m\}$, равен «минус», то отклонение равно $(-z_{kj})$ от 0 (уменьшилось на величину z_{ikj}) относительно нормального состояния (с нулевым отклонением). Если знак числа z_{ikj} равен плюс, то отклонение равно (увеличилось на величину z_{ikj}) относительно нормального состояния (с нулевым отклонением). Ниже моделируются ненулевые величины z_{ikj}. Линейные комбинации значений z_{ikj}, j=1,2,5, образуют значения изменчивостей y_{i1},y_{i2},y_{i5} y–переменных, относительно которых верны те же свойства и аналогичные соотношения: $(1/m)(y_{ij}+\ldots+y_{imj})/m=0$, j=1,…,5.

В статье [20] мы применили другую мозаику индикаторов: назначили по одной компоненте во всех 5-х будущих псевдособственных векторах. Здесь применяем другую мозаику для фигуры индикаторов. Здесь назначим все компоненты только 1-ого собственного вектора. Индикатор [20] наличия знания (индикатор бодрости) – компонент c_{kj} собственного вектора, значение которой доминирует над значениями компонент других собственных векторов: $c_{k1}>_{kj}$, j=2,…,5; k=1,…,m.

Величина компоненты c_{kj} равна коэффициенту корреляции [21-23] $c_{kj}=corr(z_k,y_j)$, который указывает на вхождение имени-смысла z-переменной z_k (знания об z_k) в имя-смысл y-переменной y_j (равной $y_{ij}=z_{i1}*c_{1j}+z_{i2}*c_{2j}+\ldots+z_{in}*c_n$,) Смысл y-переменной y_j равен сумме смыслов z-переменных $z_1,z_2,\ldots,z_n$. Используя словесное равенство между смыслами назначим имена-смысли y-переменным y_1,y_2,y_5,y_4 и z-переменным $z_1,z_2,\ldots,z_5$, но так, чтобы сумма 5 имен-смыслов когнитивно равнялась имени-смыслу y-

переменной. Таких сумм смыслов 4: по одному на каждую y-переменную. Этим мы фиксируем наличие 4-х y–переменных $disp(y_1)=\lambda_1$, $disp(y_2)=\lambda_2$, $disp(y_5)=\lambda_5$, $disp(y_4)=\lambda_4$. Каждая y–переменная y_1,y_2, y_3,y_4 должна быть и является линейной комбинацией 4-х z–переменных с коэффициентами, равными значениям компонент собственных векторов $y_{i4}=z_{i1}*c_{14}+z_{i2}*c_{24}+\ldots+z_{i5}*c_{54}$. Математическая модель для нашей когнитивной модели является линейной.

При ниже использованной мозаике индикаторов, при допустимых значениях наших индикаторов найдена матрица C_{55} собственных векторов и матрица собственных чисел $\Delta_{55}=diag(0.9784,0.7080,1.3301,1.9602,0.0233)$. Это позволило провести расчеты при отсутствии теоремы существования решений Оптимизационной Задачи.

Пример моделирования значений изменчивостей показателей климата и негативных показателей деятельности человека

Алгоритм вычисления матрицы $C_{55}:(I_{55},I_{55})=>(\Lambda_{55},C_{55})$, где $\Lambda_{55}=diag(\lambda_1,\lambda_2,\ldots,\lambda_5) = \Delta_{55}=\Delta_{55}=diag(0.9784,0.7080,1.3301,1.9602,0.0233)$, значения $\lambda_1,\lambda_2,\ldots,\lambda_5$ равны длинам полуосей гиперэллипсоида. Длины 5 полуосей, направленных вдоль 5 собственных векторов равны значениям 5 собственных чисел: $c^T_1c_1=1$, $\lambda_1=0.9784$, $c^T_2c_2=1$, $\lambda_2=0.7080$, $c^T_3c_3=1$, $\lambda_3=1.5501$, $c^T_4c_4=1$, $\lambda_4=1.9602$, $c^T_5c_5=1$, $\lambda_5=0.0233$. Полученные в результате решения Оптимизационной Задачи длины новых полуосей в сумме равны 5. Гиперэллипсоид с длинами полуосей 0.9784, 0.7080, 1.3301, 1.9602, 0.0233) отличающимися друг от друга длинами полуосей получен с применением матрицы C_{55} к гипершару с единичными длинами радиуса: (1,1,1,1,1). Для каждой матрицы C_{nn}, n>2, существует свой n–мерный гиперэллипсоид. Элементы матрицы C_{55} зависят от формы мозаики индикаторов, от размерности n. Значения длин (1,1,1,1,1) начальных векторов мы интерпретировали как собственные числа, соответствующие нейтральной системе собственных векторов $I_{55}=C_{55}$. Цель состоит в поиске матрицы C_{55} из решаемой Оптимизационной задачи. Значения индикаторов влияют на выбор длин полуосей будущего гиперэллипсоида, длины полуосей которых в сумме равны 5.

Оптимизационная Радача и новые индикаторы

Оптимизационная задача. При заданных значениях n=5, $\Lambda_{55}=diag(\lambda_1,\lambda_2,\ldots,\lambda_5)$, значениях индикаторов $c_{41}=0.40$, $c_{12}=0.58$, $c_{22}=0.56$, $c_{52}=0.17$, $c_{15}=0.50$, $c_{14}=0.25$, $c_{44}=0.86$.

Требуется найти матрицу собственных векторов C_{55} такую, что: $C_{55}C^T_{55}=I_{55}$, $C^T_{55}C_{55}=I_{55}$.

Программа-таблица Оптимизационной Задачи: целевая функция $\lambda_1+\lambda_2+\lambda_5+\lambda_4+\lambda_5=5$,

Функции ограничений: $C_{55}C^T_{55}=I_{55}$,$C^T_{55}C_{55}=I_{55}$.

Изменяемые значения: матрица C_{33}; матрица $\Lambda_{33}=diag(\lambda_1,\lambda_2,\ldots,\lambda_5)$.

В программе-таблице Оптимизационной Задачи (программе-таблице) введены другие ограничения: $c_{41}=0.40$, $c_{12}=0.58$, $c_{22}=0.56$, $c_{52}=0.17$, $c_{15}=0.50$, $c_{14}=0.25$, $c_{44}=0.86$.

Замечание: процедура Solver использует программу GRD2, не изменяет значения элементов матрицы C_{55}, назначенных для процедуры изменяемыми.

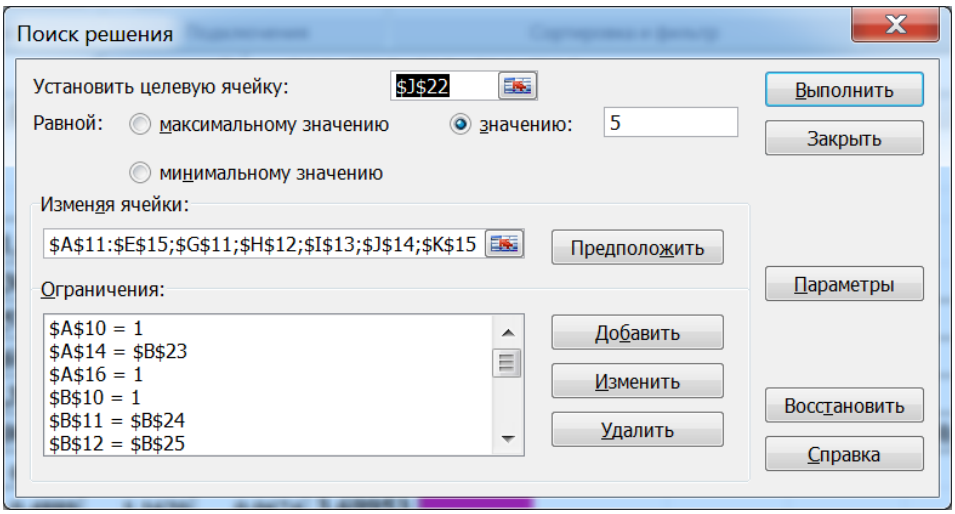

Рисунок 1. Таблица-программа решения Оптимизационной Задачи

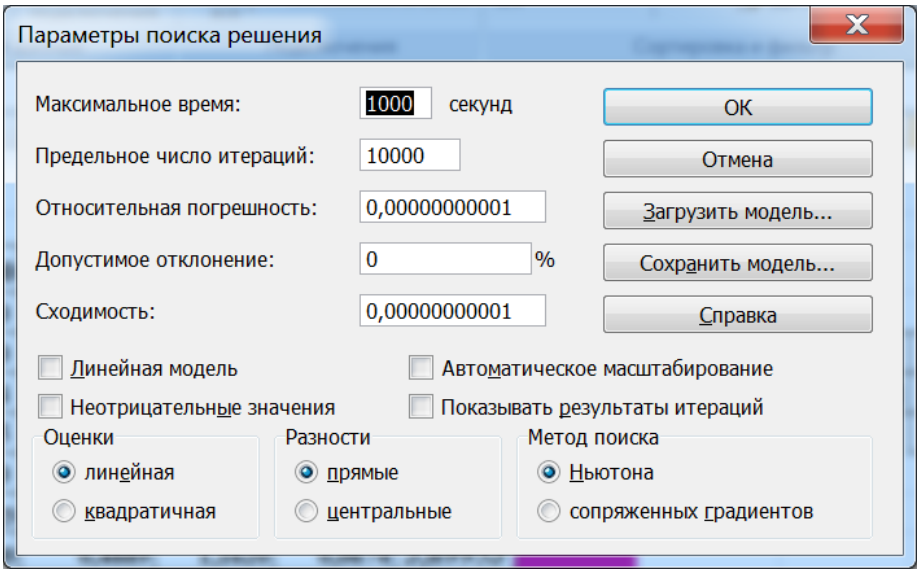

Рисунок 2. Параметры программы – таблицы

Модельные значения изменчивостей показателей климата и негативных показателей деятельности человека

Таблица 1

№	1	2	3	4	5	6
1	**0.7159**	0.5800	0.3000	0.2500	-0.0575	1.0000
2	**0.5587**	0.3600	0.5729	**0.4595**	0.1920	1.0000
3	0.0901	**0.7094**	0.6957	-0.0688	0.0002	1.0000
4	0.4000	0.0455	**-0.5128**	0.8600	0.0256	1.0000
5	0.1000	0.1700	0.0041	0.0000	0.9805	1.0000
	1.0000	1.0000	1.0000	1.0000	1.0000	

Таблица 2

	y 1	y 2	y 3	y 4	y 5
	1	2	3	4	5
1	-0,6940	-0,7862	2,3075	0,6131	-0,2115
2	0,3539	-0,1938	0,7772	-2,3073	-0,0233
3	-0,5580	0,0248	-1,7069	0,0872	0,2736
4	0,4087	0,5233	-1,6196	2,0895	-0,0871
5	2,4998	0,0952	-1,5311	-1,3776	-0,0918
6	-0,0804	0,8281	0,7377	-2,7445	0,0955
7	-0,3148	0,6924	-1,8110	0,9970	0,0439
8	0,2930	0,3047	-0,2046	1,2467	0,0982
9	1,5733	-0,5742	-0,0767	2,3944	0,0437
10	0,5980	0,1668	-0,0176	-0,6667	0,2789
11	-0,4586	-1,0108	-1,7518	-1,1616	-0,0331
12	-0,8294	1,6514	0,2956	-0,6065	-0,0605
13	-1,2297	1,9646	-0,1634	0,2611	-0,1208
14	-0,7022	0,1696	0,8781	1,5895	0,2513

15	-0,5944	-0,5876	1,2898	2,3601	0,0620
16	-0,4695	-1,3683	0,8934	-0,5780	0,1203
17	-1,2694	-1,1930	-0,1921	0,1614	-0,1549
18	-0,5378	0,9362	1,3070	-1,2967	0,0149
19	0,5298	-0,8374	0,0677	-1,4018	0,1794
20	1,5135	0,5127	1,8286	1,4109	0,0473
21	-1,6839	-0,6373	-1,1319	-0,8020	-0,0611
22	-0,4180	-0,4841	-1,0346	0,9046	-0,2329
23	1,1381	0,4755	0,5050	0,0412	-0,2936
24	0,9319	-0,6726	0,3538	-1,2138	-0,1385
	0,978397	**0,70801**	**1,330099**	**1,96019**	**0,0233**

Таблица 3

	z 1	z 2	z 3	z 4	z 5
	1	2	3	4	5
1	0,218591	0,78613	0,492681	0,15127	0,124795
2	-0,531998	0,53912	1,789685	-1,93138	0,068355
3	-0,499956	-1,47015	-1,49587	-0,17056	-0,02264
4	0,785135	-0,5386	-1,69448	2,02815	-0,31899
5	1,057114	0,33876	0,945319	-0,62137	-0,50967
6	-1,377846	0,83184	2,355243	-1,94909	0,398396
7	-0,234956	-1,02671	-1,53166	0,97226	-0,15344
8	0,589955	0,26883	-0,46019	1,27132	0,098869
9	2,288544	0,65295	-0,82331	2,18339	-0,17214
10	0,127555	0,44482	0,725355	-0,34845	0,267542
11	-0,589671	-2,13322	-1,43156	-1,6986	-0,53676
12	-1,411119	0,61552	1,047763	0,05022	0,362079
13	-1,510941	0,26239	0,262617	0,8086	0,298197
14	0,1762	0,42568	-0,45709	1,32977	0,488219
15	0,852733	0,35911	-0,94653	1,69983	0,230316
16	0,018467	-0,41063	-0,1002	-1,18175	0,053625
17	-0,446926	-1,55959	-1,53521	-0,73995	-0,34481
18	-1,121901	1,08307	1,841741	-0,72951	0,475955
19	0,14446	-0,14696	0,55179	-1,45325	-0,0026
20	1,632529	2,53439	1,599323	1,95315	0,409155
21	-1,404628	-2,18341	-1,58354	-1,48138	-0,30293
22	0,120632	-1,2459	-1,67091	0,37979	-0,49573
23	0,675953	1,23657	1,170448	0,57318	-0,16502
24	0,442136	0,33612	0,948676	-1,09558	-0,25078
	0,0000	0,0000	0,0000	0,0000	0,0000
	0,918121	1,22526	1,636199	1,66669	0,100767

При ниже использованной мозаике индикаторов, при допустимых значениях наших индикаторов найдена матрица C_{55} собственных векторов и матрица собственных $\Delta 55=diag(0.9784;\ 0.7080,\ 1.5501,\ 0.509697478,\ 1.9602,\ 0.520504656,\ 0.0255)$. Это позволило провести расчеты при отсутствии теоремы существования решений Оптимизационной Задачи. При начальных значе ниях индикаторов: $c_{41}=corr(z_4,y_1)=0.40$, $c_{12}=corr(z_1,y_2)=0.5800$, $c_{22}=corr(z_2,y_2)=0.5600$, $c_{52}=corr(z_5,y_2)=0.1700$, $c_{13}=corr(z_1,y_3)=0.3000$, $c_{14}=corr(z_1,y_4)=0.2500$, $c_{44}=corr(z_4,y_4)=0.86$..

Визуализация взаимосвязанных динамик изменчивостей показателей климата и негативных показателей деятельности человека

Ниже приведены динамики взаимных связей собственных изменчивостей неизмеряемых показателей изменений климата и негативных показателей последствий для деятельности человека. Наглядные графические иллюстрации динамик значений показателей показывают адекватность реальным связям в системе «изменение климата - природные и хозяйственные последствия». Описание взаимных динамик, для наглядности сгруппированных по 2,3,4,5 штук, показателей климата и деятельности человека следующее.

Все динамики значений изменчивостей пар (троек), четверок) переменных визуально адекватны по значениям своих заданных индикаторов из матрицы C_{55} индикаторов.

Динамика 2-х (z,y)-кривых с значением c_{12}=0.58 существенно отличается от динамики 2-х (z,y)-кривых с значеием c_{52}=0.17. Визуализированы нами 6 графиков (Рисунки 3,4,5,6,7,8).

Наиболее информативными являются 2 валидных показателя y_3,y_4 (Рисунок 3) с доминирующими дисперсиями, по величине превышающих 1. Их дисперсии превышают дисперсию (=1) z-переменной, ибо значения y_3,y_4 равны линейным комбинациям значений z-переменных z_1,z_2,z_4. Для доминирующих по дисперсиям y–переменных (валидных показателей) y_3,y_4 весомыми по величине «веса» являются z-переменные {z_1,z_2,z_4}. Этот вывод следует из показанных ниже схем (реальных связей климата и человека): $y_3 \leftarrow\{z_1,z_4\}$ (Рисунок 6+Рисунок 5), $y_4 \leftarrow\{z_1,z_2,z_4\}$ (Рисунок 6+Рисунок 8).

Три показателя последствий для человека : «негативное воздействие на сельское хозяйство» (z_1), «дальнейшее уменьшение количества воды и ухудшение ее качества в регионах» (z_2), «увеличение степени ущерба экологическим системам и биологическому разнообразию» (z_4) являются весомыми по величине «веса» при климатических изменениях «сильных ливней» (y_3), «сильных штормов и ураганов » (y_4). В материалах ООН смыслы словесно при климатических изменениях сформулированы более ясно: «годовой уровень осадков, происходящих с большими интервалами, в виде гораздо более сильных и кратковременных ливней, вызывающих усиление засух и наводнений (y_3), степень роста интенсивности сильных штормов и ураганов (y_4).

По условиям модели они (y–переменные y_3,y_4) яаляются некоррелированными и должны иметь разные тренды. Но на Рисунке 3 видны одинаковые тренды (в природе они такими должны быть), этот Рисунок 3 показывает одно из проявлений адекватности модельных данных реальным данным. Переменные y_3,y_4 имеют смысли («годовой уровень осадков, происходящих с большими интервалами, в виде гораздо более сильных и кратковременных ливней, вызывающих усиление засух и наводнений» (y_3,λ_3=1.5501) и «степень роста интенсивности сильных штормов и ураганов» (y_4, λ_4=1.9602, dv/dt -объем воды за единицу времени) и имеют совпадающие динамики своих значений. Отклонения y_{ikj}, j=3,4, от 0 этих y–изменчивостей наибольшие (Таблица 3, столбец 4,5). Амплитуда колебаний каждой из y–переменной $y_{i4}=z_{i1}*c_{14}+z_{i2}*c_{24}+\ldots+z_{i5}*c_{54}$ доходит до граничных значений (-3;+3).

Совместная динамика (Рисунок 4) значений изменчивостей (y_{i1},z_{i4}) пары переменных (y1,z4) графически визуально адекватны реальной зависимости между показателем «колебания температуры» (**y_1**) и показателем «увеличение степени ущерба экологическим системам и биологическому разнообразию» (z_4). Рисунок 4 визуализирует реальную схему связи: $y_1 \leftarrow\{z_4\}$. Взаимная динамика на Рисунке 4 соответствует заданному значению значению c_{41}=corr(z_4,y_1)=0.4 индикатора c_{41} из матрицы C_{55} индикаторов. Следующий Рисунок 8 визуализирует взаимные динамики только 5 z–показателей и должен анализироваться читателем при анализе одного из Рисунков 3,4,5,6,7.

Совместные динамики (Рисунок 5) значений изменчивостей (y_{i2},z_{i1},z_{i2},z_{i5}) тройки переменных (y2,z1,z_2,z5) графически визуально адекватны реальной зависимости: «колебания уровня осадков» (y_2) ведут к «негативному воздействию на сельское хозяйство» (z_1), к «дальнейшему уменьшению количества воды и ухудшению ее качества в регионах» (z_2) и к «увеличению относительного уровнння (подъема уровня моря), вызванного ожидаемым повышением температуры» (z_5). Рисунок 5 визуализируют реальную схему связи: $y_2 \leftarrow \{z_1,z_2,z_5\}$. Взаимные динамики на Рисунке 5 соответствует 3 заданным значениям c_{22}=corr(z_2,y_2)=0.5600, c_{52}=corr(z_5,y_2)= 0.1700 индикаторов.

Совместные динамики (Рисунок 6) значений изменчивостей (y_{i3},z_{i1}) пары переменных (y3,z1) графически визуально адекватны реальной зависимости между «ростом годового уровня осадков, происходящих с большими интервалами, в виде гораздо более сильных и кратковременных ливней, вызывающих усиление засух и наводнений» (**y_3**) и «степенью негативного воздействия на сельское хозяйство» (z_1). Рисунок 6 визуализирует реальную схему связи: $y_3 \leftarrow\{z_1\}$.

Взаимная динамика на Рисунке 6 соответствует заданному значению $c_{13}=corr(z_1,y_3)=0.5000$ индикатора.

Совместные динамики (Рисунок 7) значений изменчивостей (y_{i4},z_{i1},z_{i4}) тройки переменных (y_4,z_1,z_4) графически визуально адекватны реальной зависимости: степень роста интенсивности сильных штормов и ураганов (y_4) ведет к увеличению степени негативного воздействия на сельское хозяйство (z_1) и к увеличению степени ущерба экологическим системам и биологическому разнообразию (z_4). Рисунок 7 визуализирует реальную схему связи: $y_4 \leftarrow\{ z_1,z_4\}$. Взаимная динамика на Рисунке 7 соответствует 2 заданным значениям $c_{14}=corr(z_1,y_4)=0.25$, $c_{44}=corr(z_4,y_4)=0.86$ индикаторов. Этим мы визуально иллюстрируем адекватности модельных значений изменчивостей заданным значениям индикаторов c41=0.40, c12=0.58, c22=0.56, c52=0.17, $c_{14}=0.25$, $c_{44}=0.86$.К красной кривой (y_4) зеленая кривая (z_4) проходит ближе, чем синяя кривая (z_1). Эта разница динамик обусловлена разницей между значениями $c_{14}=0.25$, $c_{44}=0.86$.

При решении Оптимизационной Задачи компоненты (не назначеные нами индикаторами) 5-го собственного вектора (-0.037450262, 0.191985321, 0.000237098, 0.02557372, 0.980349449) не превратились в новые индикаторы, что правильно. Это–признак пригодности нашей модели для моделирования климата и последствий для человека. В дополнение к нашим 7 индикаторам ожидаем появление новых индикаторов, моделируемых Оптимизационной Задачи модели. Этих новых индикаторов 5 штук: $c_{11}=0.7159$, $c_{21}=0.5587$, $c_{32}=0.7094$, $c_{43}=0.5128$, $c_{24}=0.4595$. Новые 4 схемы визуализирует «работу» 7+5=12 индикаторов: $y_1\leftarrow\{z_1,z_2,z_4\}$ (Рисунок 4+Рисунок7), $y_2\leftarrow\{z_1,z_2,z_3,z_5\}$ (Рисунок 5+ Рисунок 8), $y_3\leftarrow\{z_1,z_4\}$ (Рисунок 6+Рисунок 5), $y_4 \leftarrow\{z_1,z_2,z_4\}$ (Рисунок 6+Рисунок 8).

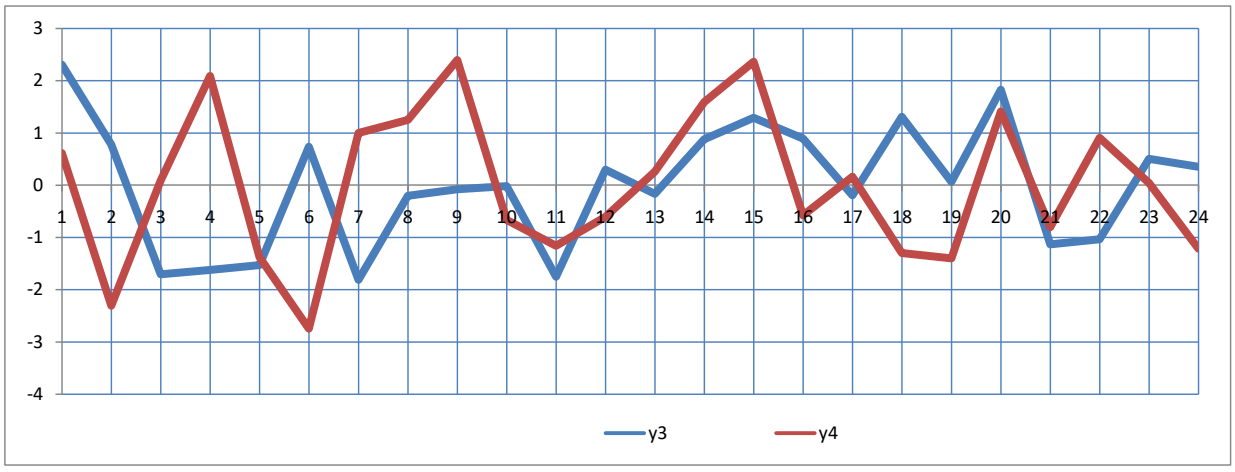

Рисунок 3

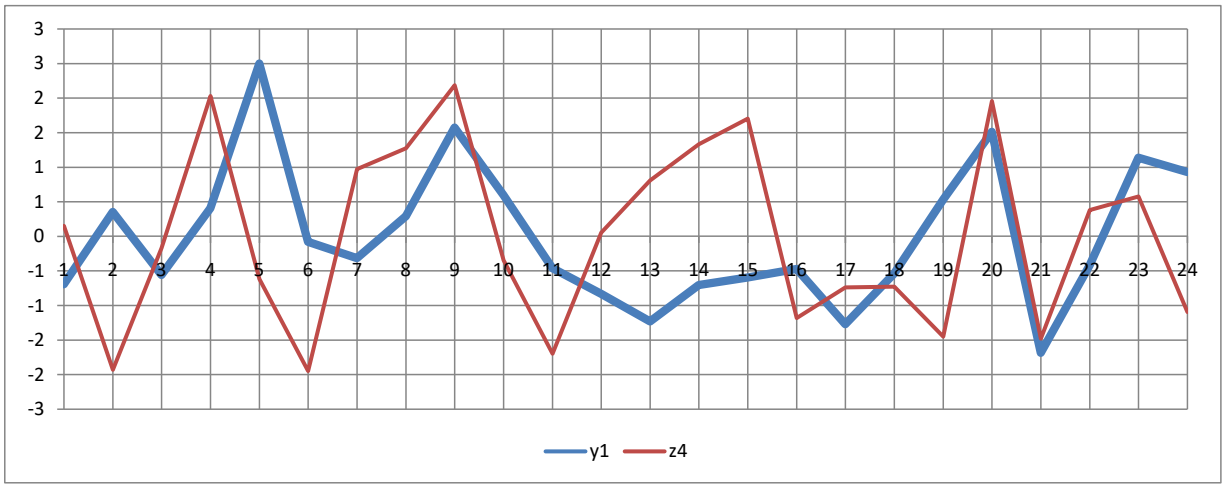

Рисунок 4

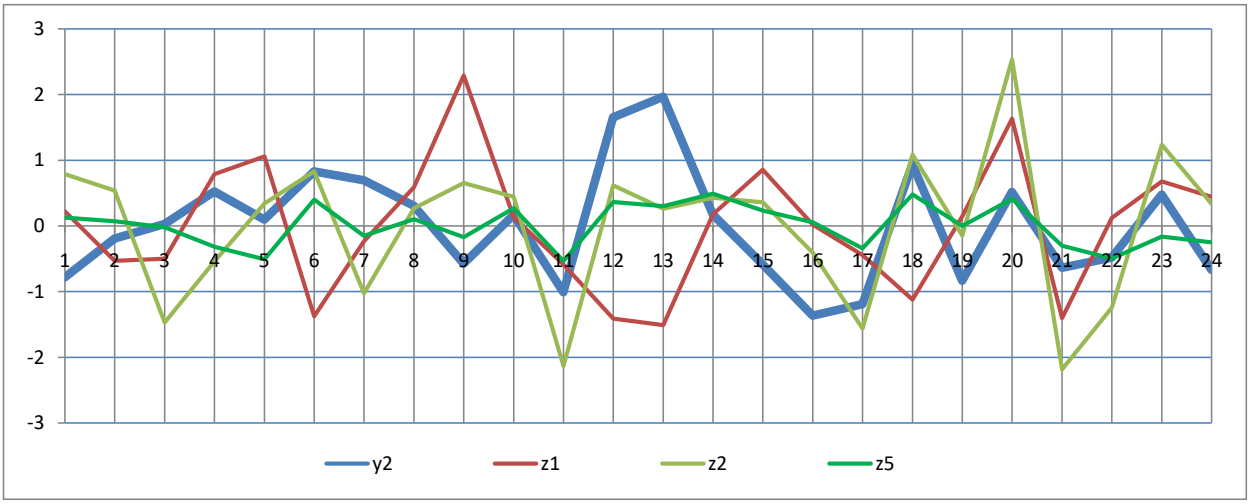

Рисунок 5

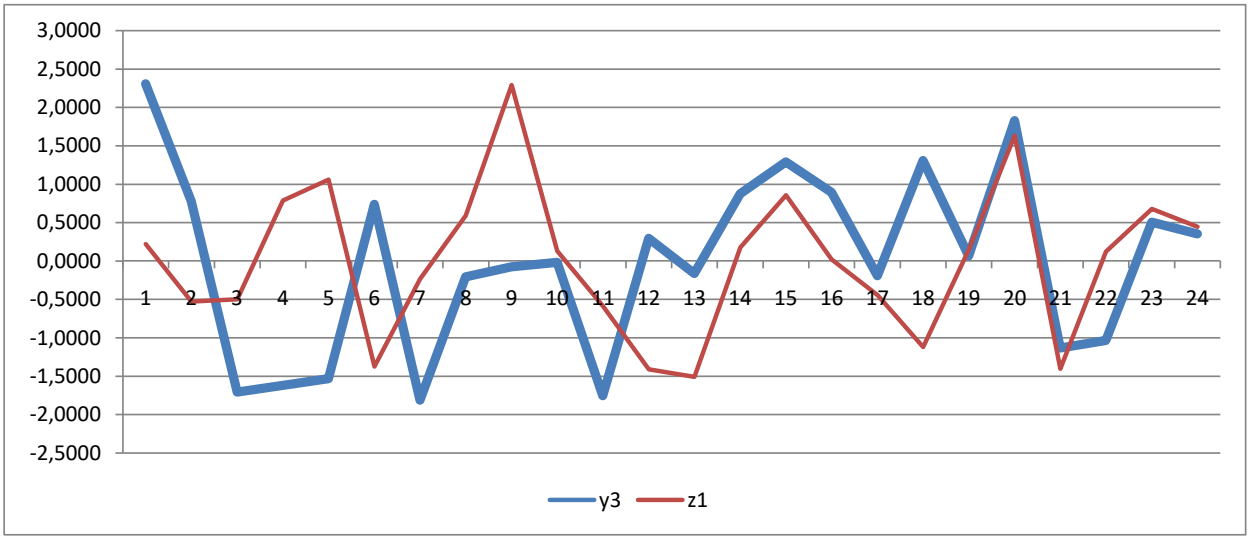

Рисунок 6

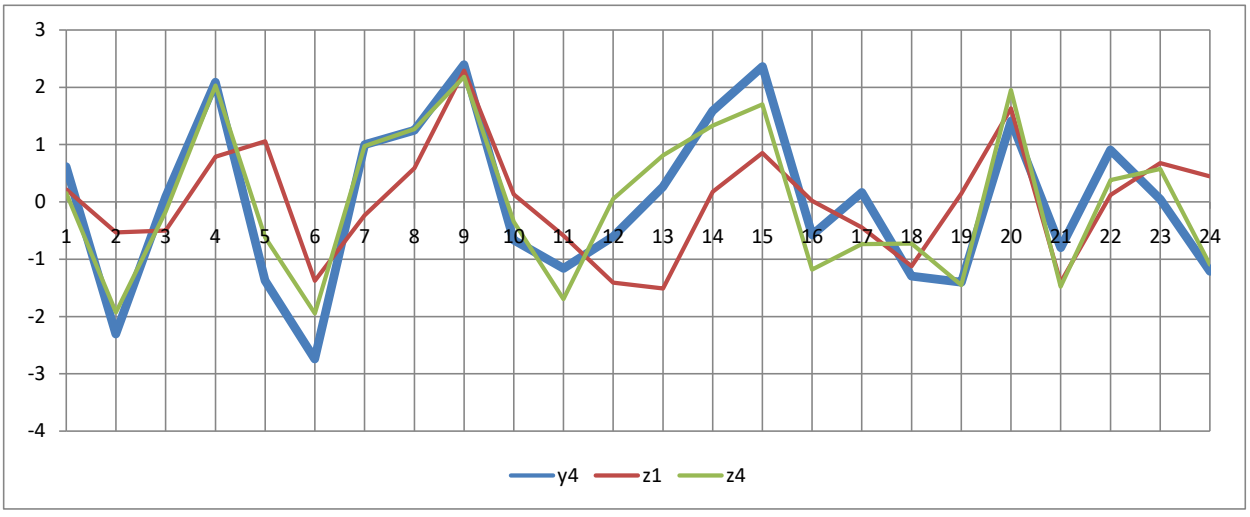

Рисунок 7

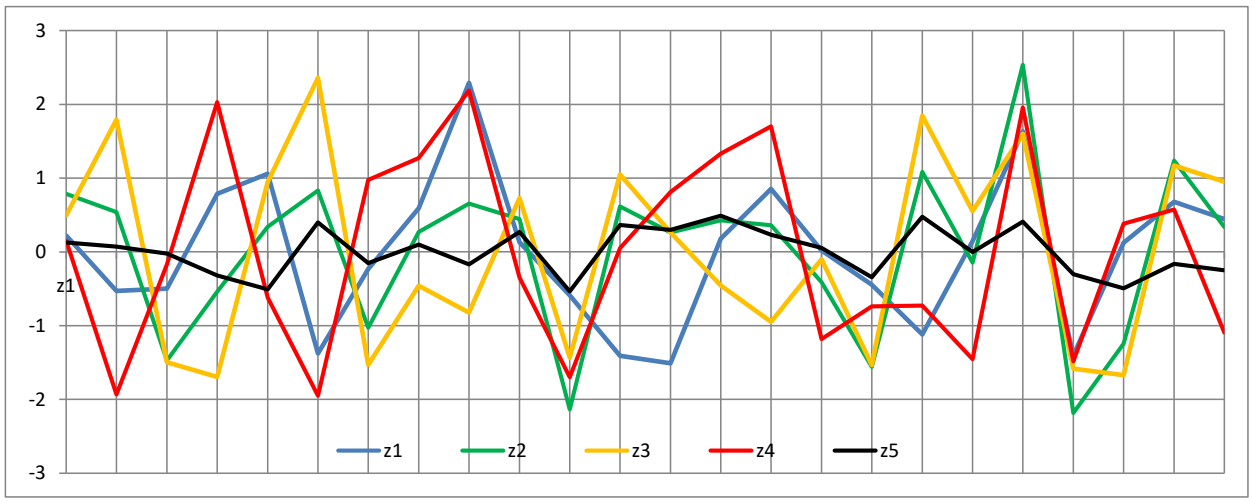

Рисунок 8

Заключение

Извлечение цифровых знаний из числовых модельных данных по математически введенным индикаторов присутствия знаний позволило нам использовать мозаику индикаторов, при допустимых значениях наших индикаторов найти матрицу C_{55} собственных векторов и матрицу собственных чисел Λ_{55}=diag(0.9784, 0.7080, 1.3301, 1.9602, 0.0233). Проведены расчеты при отсутствии теоремы существования решений применяемой Оптимизационной Задачи. Были найдены значения параметры и переменные (разнообразные по типу интрпретации) когнитивной модели изменчивости климата и изменчивости негативных последствий для хозяйственной деятельности человека. Пример моделирования значений изменчивостей показателей климата и негативных показателей деятельности человека численно и визуально отображает разнообразие и обширность видов зависимостей, взаимосвязей 9=4+5 показателей (Рисунки 4-8). Управляющими параметрами являются приемлемые величины 7 индикаторов (компонент собственных векторов) из матрицы собственных векторов C_{55}.

Извлечение цифровых знаний из числовых реальных данных- превращение данных в значимую информацию за счет применения разработанной математической модели и многомерного уравнения когнитивных смыслов изменчивостей переменных, направленных на получение адекватности к требуемой ситуации. Нам удалось применить другую мозаику для фигуры индикаторов наличия знания, отличающуюся от мозаики из статьи [19].

Разработана когнитивная модель изменчивости климата и изменчивости негативных последствий для хозяйственной деятельности человека. Исходные данные - фразы смыслов 4-х показателей изменений климата (колебания уровня осадков и т.д.) и 5 негативных показателей последствий (степень ущерба экологии и т.д.) для деятельности человека. Последствия выражены в виде негативных природных, экологических проявлений, негативно воздействующих на деятельность людей, объединенных в крупные компании. Получена система из 4-х смысловых многомерных уравнений смыслов (изменчивости z-переменных и изменчивости y–переменных), передающих смыслы вводимых (для когнитивной модели) валидных (вычисляемых) и измеряемых (моделируемых) z-переменных, образующих (при решении Оптимизационной Задачи) когнитивную модель, соответствующую своей математической модели. Пример численного моделирования значений изменчивостей показателей климата и негативных показателей деятельности человека дал адекватные реальным. Наглядные графические иллюстрации динамик значений 5+4=9 модельных показателей (Рисунки 1-8) показывают их адекватность реальным связям в системе «изменение климата-природные и хозяйственные последствия». Визуализация динамик показала много признаков пригодности когнитивной модели для моделирования изменений климата и последствий для человека.

Наиболее информативным 2 валидным показателям y_3,y_4 (Рисунок 3) соответствуют много проявлений адекватности динамик модельных z–переменных (Рисунки 4-8) динамикам реальным данных. Здесь дисперсии y–переменных в матрице собственных чисел Δ_{55}=diag(0.9784, 0.7080, 1.3301, 1.9602, 0.0233) не упорядочены по убыванию, как было в ранее встречавшихся случаях применения. Во всех

приложениях ОМ ГК+ПМ ГК [1-25] использовались только доминирующие собственные числа [1] .

Наши выводы по конечной выборке объема m=24 (недель, месяцев, кварталов, лет) пригодны и для совокупности из которой она была случайно выбрана.

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WAYS OF PLANT DEFINITION OF RADIO NUCLEAR-LOCED SOILS OF UZBEKISTAN

Abstract: *The article describes the research on plant decontamination of soil pesticides and radioactive elements in the areas of the Republic of Uzbekistan affected by pesticides and radionuclides, adapted to the climate and soil structure (for example, Surkhandarya region). According to the results of the study, the suitability of sunflower for the climate and soil composition of Surkhandarya region and the degree of neutralization of pesticides and radionuclides in the soil is 2.5 times higher than other plants.*

Key words: *radioactivity, radiation, soil salinity, radionuclide, cesium-137, strontium-90, degree of damage, radiometer, a-hexachlorocyclohexane, pavlovnia, fungus, sunflower, agrotechnical treatments.*

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Introduction

In the 1980s, thousands of tons of pesticides were used in the agricultural sector to control agricultural pests and diseases in order to increase cotton production in the Republic of Uzbekistan. For this purpose, more than 500 agricultural airfields have

been established throughout the country. As a result, due to the unscientific use and storage of DDT, GXTsG and other types of pesticides in agriculture, several thousand hectares of irrigated land have been damaged and the incidence of cancer, cardiovascular and digestive system diseases among the population has increased 4-7 times. By 1990, the use of pesticides in agriculture was banned by the state. But dozens of warehouses where mineral fertilizers and toxic chemicals are stored, as well as hundreds of tons of pesticides that have not been disposed of at former agricultural airfields, have mixed with the soil and continue to damage the soil to this day. In Surkhandarya region alone, there are 52 former agricultural airfields, most of which are now used by farms and the population as agricultural land. Between 1990 and 2018, 45% of the population living in these areas were hospitalized with cancer of the digestive system, and almost half of them died before the age of 60 years. According to the Surkhandarya Regional Oncology Dispensary, the incidence of cancer in the region in 2020 increased by 15 times compared to 1990. Of the 197 patients who applied to the dispensary in 2020, 132 (75.3%) lived on or near the former agricultural airfields [1, pp. 45-49].

Purpose of the study: To conduct research on the selection of plants that absorb pesticides and radionuclides in the soils of agricultural warehouses and agricultural airfields contaminated with pesticides and radionuclides.

Literature review. Pesticides are one of the most effective methods in the fight against weeds, diseases and pests. Pesticides belong to different classes of organic and inorganic compounds. Most of them are obtained artificially. The most important pesticides include organochlorine and organophosphorus compounds, carbamic acid derivatives, plant-derived (pyrethroids), triazines. Compounds of copper, sulfur and other elements can be shown from inorganic pesticides. Organochlorine pesticides are universal. They destroy many species of pests, their potency is long-lasting, and they are dangerous to warm-blooded animals [2, 3, 4].

Radioactive substances, on the other hand, have been present in small amounts since the formation of the earth. The most common of these are members of the potassium-40, uranium-238, and thorium-232 radioactive families, whose levels of distribution and radiation on Earth are not the same for different parts of the world. It depends in many ways on the soil in which we live. Pesticides and radionuclides in the soil can have harmful effects for many years. Small amounts of these harmful substances in the permanently cultivated part of the soil (mainly 30-50 cm part) may be less affected due to reclamation works, groundwater, precipitation and vegetation. However, if their amount increases in the soil and is below 50 cm, it penetrates into the porous parts of the soil, blocking the permeable layer of the soil in the form of a thin film and preventing the passage of water to the subsoil. As a result, soil moisture accumulates in the surface layer, leading to soil salinization and concentration of pesticides and radionuclides. Soils contaminated with pesticides and radionuclides, in turn, damage drinking water and plants due to precipitation, which in turn infects living organisms, including the human body, and causes various oncological diseases. Therefore, it is important to find convenient ways to neutralize pesticides and radionuclides in the soil [5,6,7].

Of course, collecting and disinfecting or recultivating soil contaminated with pesticides and radionuclides will give good results. However, these activities require sufficient funds and the use of various special techniques. In addition, decontamination of the soil in this way can lead to the loss of the fertile layer of the soil. We, on the other hand, are proposing ways to decontaminate without changing the structure of the soil, which increases soil fertility. To do this, the work of a number of researchers was studied. A plant growing in the soil in the affected area absorbs the radioactive isotope, not the radiation. As the plant grows, radionuclides from the soil enter the tree trunk and remain radioactive as before. Either way, we will have to wait for them to disintegrate. Therefore, it is easier to remove the plant from which the isotopes have accumulated and dispose of them as radioactive waste. It cannot be simply burned or discarded. If dust and smoky isotopes enter the air and water and then the food chain of animals and humans, their harmful effects on the body increase [8,9].

Pavlovniya tree has been studied for its neutralization of pesticides and radionuclides in the soil and has been known for several thousand years, grown in China for two thousand years and in the United States for 200 years. This is a tree

1/3 lighter than other tree species, grows flat, does not dry out, resistant to various diseases.

Picture 1

Improves soil fertility composition and structure due to deep root system. There are six species of this tree, the Pavlovnia Clone in Vintro 112 species planted artificially in the lands damaged by the Chernobyl NPP accident. In addition to disease resistance, this tree is able to grow in extreme conditions. It can grow at -25-270C in winter and at + 450C in summer. Due to its rapid growth, it absorbs radionuclides and pesticides along with nutrients from the soil. Observations in Parshev, Ilyintsy, Kopachi and Chernobyl regions of Ukraine for 5 years have proven to neutralize up to 25% of radionuclides in soil and up to 19% of pesticides. But it takes a lot of work to grow this tree. Because pavlovnia seedlings require special care until they reach a height of 1 m [10,11].

Russian researchers have recommended planting mushrooms in radioactively contaminated soil. During the study, maslyata-type mushrooms were planted in the affected area near the Zheleznogorsk ore plant. According to scientists from the Institute of Biophysics of the Russian Academy of Sciences, fungi can neutralize 5% of radionuclides. However, it has been proven to reduce oil residues in the soil by up to 60% [12].

Picture 2

A number of scientists also recommend planting a pine tree in large areas affected. These trees do not choose the soil, grow in any soil, and clean the air along with the soil. However, the main disadvantage of these trees is the risk of fire [13].

Picture 3

In the UK, in 2009, the British Nuclear Fuels Ltd's (BNFL) project carried out practical work on decontamination of contaminated soil by the sunflower plant and a number of positive results were obtained [14].

Picture 4

Part of the experiment. After studying the research of the above scientists, we started planting sunflower varieties in the southern regions of the country (Surkhandarya region) in April 2019 around the "Cemetery of Toxic Chemicals" in Gulbahor massif of Termez district, contaminated with radionuclides and pesticides. . We took soil samples during each vegetative period of the plant (budding, branching, flowering, and fruit formation and ripening) and determined the amount of pesticide and radionuclide (mainly cesium-137 and strontium-90) in the Delta-Plus mass spectrum. The detection results are presented in Table 1.

Table 1. Analysis of soil contaminated with pesticides and radionuclides planted in sunflower (2019)

№	Soil samples taken during the growing season of sunflower	Amount of pesticide in soil (α-GXTsG), mg	Amount of cesium-137 radionuclide in soil, mg / kg	Amount of strontium-90 radionuclide in soil, mg / kg
	Soil sample before planting sunflower	0,012	0,25	0,21
1	The budding period	0,011	0,23	0,19
2	Branch	0,011	0,20	0,18
3	Flowering period	0,009	0,16	0,15
4	Fruiting period	0,008	0,12	0,12
5	The ripening period of the fruit	0,008	0,12	0,12

As can be seen from Table 1, the harmful substances in the soil have been decreasing since the time the sunflower sprouted. While this condition has been slow in pesticides, radionuclide depletion has been found to be significant. In addition, the absorption of harmful substances from the soil after the flowering period of sunflower is declining. This means that the sunflower plant gives good results in neutralizing pesticides and radionuclides in the soil. Our studies in 2020 and 2021 showed that planting sunflower in contaminated soil for 3 years reduced soil pesticides by 1.4 times and radionuclides (cesium-137 and strontium-90) by 2.5 times.

Conclusion.

Low-cost, water- and labor-intensive sunflower plant, which can be used in the southern regions of the Republic of Uzbekistan, helps to increase soil fertility in areas contaminated with pesticides and radionuclides without changing the soil structure and composition. Harvested in August) can reduce pesticides in the soil by 1.4 times and radionuclides by 2.5 times in 3 years.

Recommended.

It is recommended to grow sunflower for 3 years on lands contaminated with pesticides and radionuclides that are not used in agriculture in Surkhandarya region.

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THE USE OF PHENOLOGICAL OBSERVATIONS IN THE DETERMINATION OF THE MAIN PHASES OF THE DEVELOPMENT OF THIN-FIBER GOOSE VARIETIES IN THE CONDITIONS OF BUKHARA REGION

Abstract: *The article is devoted to the study of the stages of goose development by the method of phenological observations of plant height and yield elements as a result of a sharp increase in plant temperature in fine-fiber varieties in the conditions of the Bukhara region.*

Key words: *soil, phase, cotton, variety, scallop, leaf, stem, tier, agricultural technology, fine-staple cotton.*
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Introduction

In the following years, the global change in the global ecological balance had a negative impact on agriculture, in particular on the cotton sector. Therefore, it is important to create new varieties of hemp that are resistant to various stress factors, productive and have high fiber quality. According to natural soil and climatic conditions, Uzbekistan is one of the most favorable regions for growing many types of agricultural crops. Gooseberry is a thermophilic plant species, especially its fine-fiber varieties. 19.5-20.1 million people in the world. tons of cotton fiber are produced, of which 1.2 million tons are produced.tons of fine fiber of the I, II, III type of fiber, which gives an idea of the varieties of pork. In the following years, the textile industry was in demand for growing extremely long fine-fiber cotton, which is intended for the production of high-quality (nomadic) yarn[2-3]

It is known that in subsequent years, due to a sharp increase in temperature during operation in the regions of Surkhandarya, Kashkadarya and Bukhara, as well as a large amount of harmsel, the varieties of medium fiber formed in these oases lead to a spill of crop elements. This, in turn, as it was noted, causes significant economic damage to farms. Therefore, in accordance with the decree of the President of the Republic of Uzbekistan "On the effective organization of the cultivation of fine-fiber cotton in 2020 on January 30" PF-47 mechanism "On the introduction of new varieties of reproduction and stimulation of mechanization", varieties of fine-fiber cotton are characterized by extreme weather conditions, waterlessness, resistance to insects in harmzel and pests. It remains to say that in the morning it is better to go to mirishkor. The length of the fiber, durability, and textile properties further increase the demand on the world market. The most important thing is that its economic efficiency is 60 percent higher than that of other varieties.[1-4]

II.Object and methodology of the study

In this regard, in the conditions of the Bukhara region, some fine-fiber varieties of gooseberries were studied for their fertility, plant height, number of trunks and bushes. The experiment was carried out in the field and in the laboratory of the farm "Grandson of Akrambobo Gulshoda" in the Kabansky district of the Bukhara region.

III.Research results and their discussion

According to him, on April 20, 2021, agrotechnical works were carried out on the ground, and on this day, Termez-202, Termez-208, Surkhon-14, СП-1607 and Bukhara 102 (medium-fiber) varieties of hemp were planted on the ground. The experimental site consists of 5 Tiers. The length of each hemisphere is 2 meters. In one hemisphere, 2 varieties were sown in 8 rows in 8 rows, 2000 seeds of each variety were sown in a dry state to a depth of 8-10 cm. On May 5, 2021, that is, 15 days after the seeds were ground, their germination was calculated as a percentage. According to him, the highest rates were in the varieties СП-1607, Bukhara-102, 57.0% and 62.0%, respectively, and the lowest-in the varieties Termez-202, Surkhan-14 and Termez-208, respectively: 19.5% and 19.9%.

In subsequent studies, the elements of the height and yield of the cannabis plant were studied (20.04.2021). 10 days after planting, that is, on April 30 (30.04.2020). **I- phenological** observation was carried out. The height of the Bund plant, the number of joints and the number of trunks were studied in 10 plants of each variety.

According to the height of the plant (April 30), the medium-fruited variety Bukhro-102 was 8 cm, Termez-208 6 cm, and the variety СП-1607 6 cm was characterized by high yield, the variety Surkhan-14 5 cm, Termez-202 4 cm, low yield. (Table 1)

Table 1. Phenological shifts in cotton varieties

№	Varieties of goose	I-phenological observations	II- phenological observations		III- phenological observations		IV- phenological observations	
		April 30	June 4		July 8		August 22	
		Plant height	Plant height	Number of Shons	Plant height	Number of flowers	Plant height	Breast number
1	Termez-202	4	31.5	18	81	23	106	29
2	Surkhon-14	5	32	19	73	19	95	23
3	СП-1607	6	37	15	80	30	105	34
4	Termez-208	6	39	20	88	25	108	34
5	Bukhara-102 (medium fiber)	8	45	8	79	6	100	11

In the **II-phenological** observation (June 4), together with the growth of plants, the number of Shon was studied. Bukhara-102 varieties of 45 cm, Termez-208 varieties of 39 cm, SP-1607 varieties, where 37 cm is formed, with a high layer, Surkhon-14 varieties of 32 cm, Termez-202 varieties of 31.5 cm, with a low growth was determined. The number of Shons in one bush was provided by 20 in the "Termez-208" variety, 15 in the " СП-1607" variety, 18 in the "Termez-202" variety, 19 in the "Surkhan-14" variety, 8 in the "Bukhro-102" variety with medium fibers.

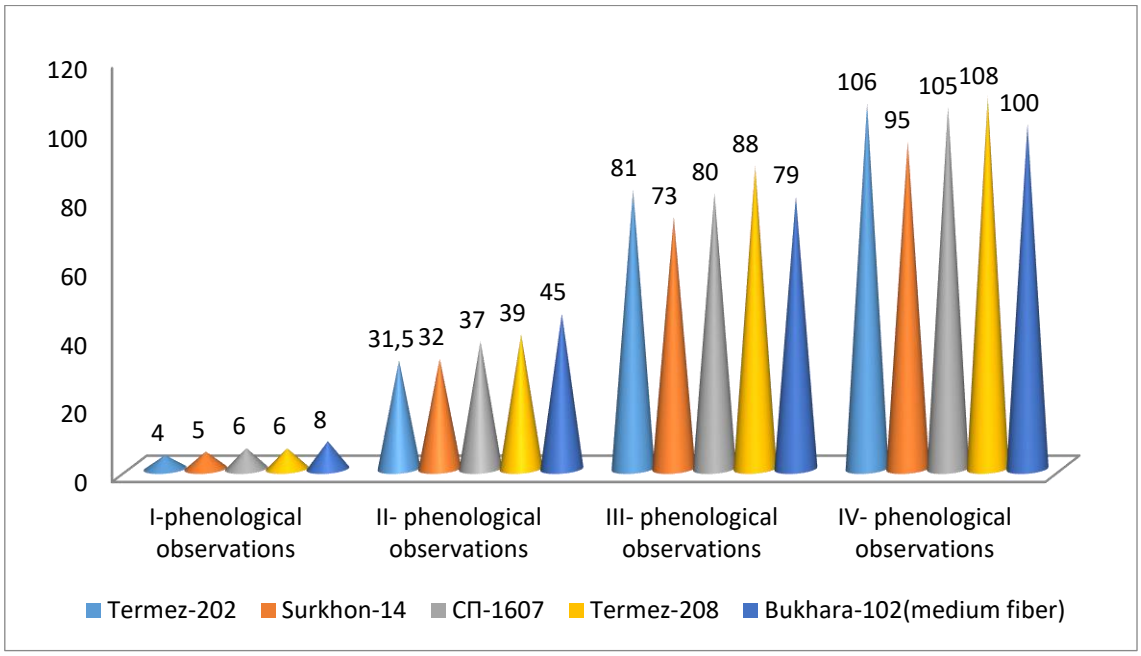

Figure 1. plant height in varieties with thin fibrous bundles

III-phenological (26.07.2021 g. 1-after watering) in the observation observation (July 8), the number of flowers together with the height of the plant was studied. According to the growth of the plant, the result was shown by the varieties Termez-208, variety 88 cm, variety Termez-202, variety 81 cm, variety Surkhan-14 73 cm, variety СП-1607 80 cm and medium-fruited Bukhro-102 79 cm. The number of flowers on one bush provided a high indicator: the varieties Termez-208 had 25 of them, the varieties СП-1607 7-30, while the varieties Termez-202-23, the varieties Surkhon-14-19, the varieties Buksro-102 with an average fiber content-6, the varieties with a low content.

IV-phenological observation was carried out on the 124th day of chickenpox (August 22 after coining). The height of the bund plant and the amount of greenery were taken into account. The height of the plant of the Termez variety is 208-108 cm, Termez-202-106 cm. The highest indicator is Surkhan-14-95 cm, SP-1607-105 cm. the average height of the fiber of the Bukhro-102 variety was 100 cm. The number of burrows in one bush provided a high indicator for Termez varieties-208, The height of the plant of the Termez variety is 208-108 cm, Termez-202-106 cm. The highest indicator is Surkhan-14-95 cm, SP-1607-105 cm. the average height of the fiber of the Bukhro-102 variety was 100 cm.varieties-34 units, Termez varieties-202 varieties-29 units, Surkhon varieties-14 varieties-23, medium-fiber Buxro varieties-102 varieties-11 units.

IV.Conclusion

Based on the analysis of the obtained data, the following conclusions can be drawn. Taking into account the climatic conditions of the area in the conditions of the Bukhara region, it is possible to obtain new forms for use as primary materials for breeding (for several generations) on the basis of the future maturation of varieties of fine-fiber goose-208 The height of the plant of the Termez variety is 208-108 cm, Termez-202-106 cm. The highest indicator is Surkhan-14-95 cm, SP-1607-105 cm. the average height of the fiber of the Bukhro-102 variety was 100 cm., Termez-202.

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QR – Issue QR – Article

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STEPS OF PSYCHOLOGICAL ASSISTANCE IN PERSONS WITH LOSS SYNDROME

Abstract: *This article discusses the work of providing psychological assistance to a person with loss syndrome and its stages, each stage of which requires an individual approach from the psychologist.*

Key words: *loss syndrome, grief, emotion, psychological counseling, depression, psychotherapy.*

Language: *English*

Citation: Askarova, N. A., & Ibragimova, N. N. (2021). Steps of psychological assistance in persons with loss syndrome. *ISJ Theoretical & Applied Science, 09 (101)*, 527-529.

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Introduction

Loss Syndrome is a grief, a severe emotional state that results from the loss of a loved one. Loss can be temporary or permanent (death), real or imaginary, physical or psychological, grief - this is also a process through which a person works with the pain of loss, regains a sense of balance and a full life. But the loss is replaced by a sense of sadness, and there is a sense of fear, anger, guilt, and shame. Psychological counseling and support work with caring people consists of several stages, which are interrelated. Counseling and therapy work in this area is complex. The task of the psychologist is to help the client to experience the feeling of loss, to overcome grief. M. Whitehead emphasizes that grief cannot be stopped, it must continue as long as it is necessary. Crying is a natural reaction in this process. In the process of psychological counseling, it is necessary to pay attention to the following;

- Listen, accept, do not discuss;
- Express your sincere desire to help the client;
- Take the client's feelings and fears seriously;
- Be prepared for some customers to be angry with you;
- Give time for mutual trust: without trust, the client will not be able to share their experiences with you;
- Give the client hope, support, explain that people can overcome grief, even if the test is difficult;
- Keep enough distance, do not get bogged down in customer problems, maintain a supportive position.
- Another goal of counseling and therapy is to give the client the opportunity to express a range of feelings, thoughts, and actions. In this: Be realistic: grief cannot be lost all at once; encourage the client to talk about the deceased and express emotions; don't be surprised if the client tells the story of the death over and over again: repetition is a natural way to overcome grief;

explain to the client that somatic symptoms at this time, i.e., sleep disturbance, worsening of appetite, are normal; find an appropriate option for the client to "rest" from grief, but at the same time do not let them avoid the process of working with grief.

If the loss reaction is suppressed, it is necessary to determine the cause. If the loss reaction is disrupted, the following should be done: encourage the client to express and understand their feelings;

work on the problem of strong dependence that arises through relationships; pay attention to the

duality of the relationship between the client and the deceased, look for its causes; if the client has an unfounded guilt, help get rid of it; if guilt is justified, think of how he can live with that guilt, how he can nest his guilt; find an unfinished issue between the client and the deceased and work on it.

If the feeling of grief becomes chronic, then it is necessary to determine: why the client can not give up this condition; how death is reflected in the client's attitude toward himself against the background of loss; is there any useful side to clinging to grief, for example, when he began to worry about himself, he was "in the spotlight," and before that he lacked these things. Don't resist if the client takes a step forward on their own and wants to return to the circle of supporters around them and refuses to meet with you. This is the only condition for working with those who have lost a loved one. Therefore, the stages of psychological support are carried out in accordance with the stages of grief.

1. Assistance in the shock phase. To be by the side of someone who is experiencing loss, not to be left alone, to care. When there is no word to say and it means that the client is not alone, holding his hand, stroking his head helps a lot.

2.Help in the phase of strong grief. It is important to talk about the deceased, the cause of death, and the feelings associated with the event. Asking about a dead person, listening to his memories, even if the events are repeated several times. Questions can be asked: "Who did he look like?", "Can you see a picture of him?", "What did he like to do (hobbies, etc.)?", "What do you remember about him now?" questions like these allow the client to talk.

3. If the client is silent, do not force him to speak. Be prepared to continue the conversation when he returns to reality. The main thing is to support him around, to create an environment of understanding.

4. In the event of a person suddenly dying or being killed, discuss the incident down to the smallest detail, i.e. until they lose their frightening and traumatic nature. Only then can the client feel comfortable crying. Allow the client to cry, and do not show sympathy at this time.

5. Slowly (at the end of this phase) return the client to daily activities.

6. Assistance in the recovery phase. It is necessary to help the client to come back to life again, to plan for the future. The client may return to the intense grief phase of the loss several times, giving them the opportunity to talk about the deceased as much as they want. At this stage, asking for help from relatives or friends helps the client to "come to his senses"; and sometimes it is useful to remind them of their indifference, neglect, duties, and responsibilities towards their loved ones. When grief is pathological in nature or when such a risk arises, the help of a specialist will definitely be needed. In this case, a set of methods that are suitable in crisis situations, therapy of psychological trauma and severe stress is used. If the "grief case" is not completed, psychological help will be needed, even if the loss occurred several years ago.

The problems to be solved during the consultation process are individual. Some people don't understand what's going on with them; even a simple explanation of the psychology of grief in such a situation can reduce fear and stress. A person may refuse to forgive grief because he thinks it shows his weakness. A client who seeks help during a period of intense grief requires a rescue from a psychologist. However, the psychologist needs to help you cope with the painful experiences at this stage - it is necessary for the psychological trauma to heal. It cannot be avoided or denied. This situation makes it difficult to help in a crisis. Because it can become a target of customer aggression.

At this point, the customer can make the following recommendations.

1. Accept your grief. Accept the emotional and physical losses caused by the death of a loved one. It may take a long time to accept, but be determined.

2. Express your feelings. Don't hide your pain. Cry if you want, laugh if you can. Don't block your emotional needs.

3. Take care of your health. Eat well, because after hard experiences the body needs energy. Depression can be reduced by purposeful mobility.

4. Combine work and rest. Get a medical checkup. You have suffered enough. Do not harm yourself and your loved ones by neglecting your health.

5. Hang out with your friends. By remaining silent, you are refusing to let your friends listen to you and share your feelings, and by doing so you are condemning yourself to more loneliness.

6. Help others. As you help them, you begin to treat them better, you become independent towards reality, you live in the present and forget the past.

Gestalt therapy, neurolinguistic programming, cognitive-behavioral therapy, and art therapy, especially fairy tale therapy, have also been used successfully in the treatment of loss syndrome.

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QR – Issue QR – Article

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THE BASIS OF THE POSITIVE RESULTS OF TEACHING DRAWING USING COMPUTER TECHNOLOGY AND SOFTWARE

Abstract: *The use of computer technology in teaching graphic geometry and drawing to university students remains one of the requirements of the times. As a result of the use of computer graphics, students' spatial imagination expands and forms a creative approach to science and teaches students to work independently. The use of computer technology and graphics gives positive results compared to traditional methods of teaching graphic geometry and drawing, the quality of teaching, the acceptance of information by students and pupils, the stability of the acquired knowledge prevails.*

Key words: *Student, geometry, drawing, science, computer technology, spatial imagination, creativity, technology, graphics, drawing, knowledge.*

Language: *English*

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Introduction

The main purpose of education is to form spiritually rich individuals who have modern scientific knowledge, the ability to think independently and solve problems. As society develops, the level of vital needs also increases. This means that the scope of scientific knowledge expands, the level of scientific knowledge deepens, and the need for logical thinking and quick problem solving increases. From this point of view, we conclude that the education system should work not only in view of today's requirements, but also in defining and taking into account the requirements of the future. Because today's youth will become the core of society in the future. It occupies a central place in society as it covers the largest number of young people in the education system.

In order to prepare future professionals for professional work in higher education and to ensure their readiness and ability to compete in the labor market, the formation of a socially mature person, the improvement of the development process is carried out through the use of modern teaching technologies. Therefore, it is necessary to analyze existing teaching theories and develop ways to use modern teaching technology. Teaching sciences in higher education with the help of modern pedagogical technology is the main criterion for the development of theoretical knowledge of young people in the educational process, the ability to work in professional areas, the training of competitively qualified young people needed for economic development. This can be achieved primarily through the formation of professional knowledge and skills.

In higher education, the process of formation of knowledge, skills and competencies that allow to work in a specific professional activity, that is, general professional disciplines play an important role in vocational training. This is because students of vocational colleges cannot master special subjects without deep knowledge, skills and qualifications in general professional subjects. The subject will combine the basics of the relevant science. The system of basic concepts of science, the basic rules and conclusions are reflected in it. In any field of specialization, general professional sciences serve as the main criterion for specialized disciplines.

In our opinion, not enough attention is paid to the teaching of drawing courses on the basis of computer technology in higher education. Computer

graphics is taught in the fields of "Fine Arts and Drawing" and "Applied Arts". In the computer science curriculum there is little time to teach the graphics capabilities of Microsoft Word, Microsoft Paint, Microsoft EXCEL, Microsoft Power Point. (Must be able to work comfortably in graphics programs such as AutoCAD, 3DMAX, CorelDraw.

The use of computer technology in teaching graphic geometry and drawing to university students remains one of the requirements of the times. As a result of the use of computer graphics, students' spatial imagination expands and forms a creative approach to science and teaches students to work independently. He searches the Internet for the information he needs and becomes more and more eager to carry out the projects he is thinking of. A student can easily draw his or her projections when making drawings of any project by taking a pencil to the lake, but the projected detail or assembly unit has much difficulty in drawing vivid images and loses a lot of time to create a vivid image.

What does computer technology give students? The answer to this question is as follows:

-expands the spatial imagination of students;

- Encourages students to be creative;

- Encourages students to create something new in their field;

-closely assists in the aesthetic education of students; -closely assists in the execution of coursework and diploma work drawings.

Computer graphics for a graduate teacher:

- to teach in the classroom using computer technology;

-prepare lesson plans, electronic guidelines and visual aids that are needed in the classroom;

- aesthetically superior teaching process;

-helps to increase students' interest in the lesson and increase attendance.

Teaching computer graphics helps teachers in the process of preparing for and teaching lessons.

The use of computer technology and graphics gives positive results compared to traditional methods of teaching graphic geometry and drawing, the quality of teaching, the acceptance of information by students and pupils, the stability of the acquired knowledge prevails. The creation of models in 3D using computer graphics shapes students' spatial perceptions and prolongs the duration of storage of the acquired knowledge in memory.

A modern graphic geometry and drawing teacher spends a lot of time in front of a computer monitor as a result of using Internet data and computer technology to convey information to students, and prepares e-lecture texts and guidelines to facilitate lessons. These software and pedagogical tools ensure the integration of the science of descriptive geometry and engineering graphics with other disciplines, in particular, computer graphics, aesthetics, computer science, theory of machine mechanisms, machine parts, the basics of interchangeability and standardization, technical creativity and design. An increase in the scientific potential of the teacher is observed. In graphic applications, drawing geometric elements, geometric shapes, and geometric objects easily using a ready-made set of commands allows the teacher to spend less time and create more methodological guidelines. Conducting lessons using visual and multimedia textbooks ensures that the content of the lesson reaches students and learners faster. In our graduate thesis study, Microsoft Power Point, Camstudio, AutoCad, 3D Max, Flash MX programs were analyzed and the place of each of them was determined. Microsoft Power Point includes graphical geometry problems and animations. Also, the spatial solutions of problems created in the program AutoCAD were included in this software-pedagogical tool by photographing the program Camstudio.

To date, experts have noted that they have developed different learning models, modeling environments, and different computing programs. It is necessary to analyze the impact of multimedia and computer graphics in the teaching of descriptive geometry and engineering graphics. Initially, it is necessary to identify the types of multimedia in the teaching of the subject of analytical interpretation of data, descriptive geometry and engineering graphics in whole or in part.

It follows that the following requirements are set for the software-pedagogical tool of descriptive geometry:

- multimedia
- Multilevel
- hypertext
- Modern graphics
- Computer models based on modern technologies Macromedia Flash, AutoCad, 3Dmax must be interactive. There are a number of problems in the computerization of the science of descriptive geometry and engineering graphics, and they include:
- lack of methodological support, methodological manuals;
- Inability of teachers and students to create interactive models independently in the field of descriptive geometry and engineering graphics.

The e-textbook should develop the skills of higher education science programs and new models of educational activities, the use of information and telecommunication technologies, the use of ICT in students during the educational process.

Accordingly, the creation of electronic multimedia developments remains an urgent task. Such developments should include the following systems: a set of illustrated training data; virtual laboratory and interactive model complex; complex of tests; required issues; it is required to be connected to the Internet and the network, including alternative information retrieval systems from the Internet.

Student activism and independent thinking problems are one of the didactic roots of the practice. If pupils and students are not active and cannot imagine the space, the teacher's activity will not be meaningful. The development of teaching methods should be primarily focused on making students think independently and be active. Computer technology can effectively help students develop free thinking and spatial imagination.

In summary, the application of computer technology in the teaching of drawing enhances students 'cognitive abilities, motivation for innovation, and develops their spatial imagination and creative thinking skills.

Scientific and methodological literature, dissertations, best pedagogical practices on the use of modern computer technology in the education system, as well as the use of computer technology in the teaching of descriptive geometry and drawing were studied and analyzed from a scientific, pedagogical and psychological point of view. Drawing argues that the use of computer technology in the educational process is a tool that allows students to increase their mastery levels and the relevance of advanced pedagogical practices.

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QR – Issue QR – Article

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ANALYSIS OF THE IMAGE OF WISE AND ENTREPRENEURIAL WOMEN IN SHAHRIZODA STORIES

Abstract*: In the stories of the work "A Thousand and One Nights", which has a strong place in the world literature arena, the image of women of different categories is beautifully expressed in different styles. The stories, in which the image of women, which together with the beauty of sharqana(eastern), the fascination, the wisdom in them, the entrepreneurial virtues, was expressed, gave beauty to the charm of the work.*

In this article was made the scientific analysis of the features of wit and entrepreneurship in the image of women in the stories of Shahrizoda in the play "A Thousand and One Nights". There are scientific hypotheses about the meaning and purpose of illuminating these images, the existence of the prototype of the image of women in life. In the work, the image of the wise and enterprising Eastern women in life is compared with the image of artistic images. Here were investigated problems of the influence of hard-working and entrepreneur Eastern women on the image of women in the work "A Thousand and One Nights".

Key words*: A Thousand and One Nights, Shahrizoda, Hikayat, story, women of the East, wit, entrepreneur, princesses, kanizak, image, artistry.*

Language*: English*

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Scopus ASCC*: 1203.*

Introduction

In the stories of the work "A Thousand and One Nights", the image of women of different categories is beautifully expressed, in color-colored styles. Within the stories described in such diverse female character we meet wit and chevar, entrepreneurial women. Sharqana along with such qualities as beauty, latofat(beauty), hayo(shy), ibo(shy), the image of women who embodied the virtues of wisdom, entrepreneurship, prudence, the stories that have been tarnished have given a gloss to the charm of the work.

It can be said that in any society, in particular the period when the work appeared - even in a feudal society, women were able to show their intelligence, talents always and in any case. Women played a positive role in various spheres of social life, even in the most difficult conditions. They contributed to the development of society, the creation of material, spiritual wealth. In the stories "A Thousand and One Nights" with such a historical truth, the dreams of the people are embodied, the intelligence and entrepreneurship of women are manifested in the harmony of truthful and romantic styles, and their wonderful images are created in the work.

The description of a woman in stories watered with ideas that can encourage women to learn the profession of her time, to be extremely intelligent in education, is presented as follows: description of a girl in an emerald story with Ali Shor of the work "A Thousand and One Nights": "do not be surprised that the girl has a clear feminine temperament from the In addition, he reads the Qur'an in seven verses, speaks the proverbs in the right narration, is able to write letters in seven ways, and is aware of the knowledge that scientists do not know. His hand is better than gold-silver – he will benefit fifty dinars by sewing one silk curtain every week." [3,132]

We can see another story in which a description

is given to a similar girl.

"The girl was brought up in the bosom of her parents with respect, studied the science of writing, account fasohat, even riding a horse, she was brought up as ambitious, she possessed jewelry, hell, Zunnoria Uga sewing skills, as long as the girl knew five hands to turn gold into silver, silver into gold. She mastered all the arts belonging to male and female, finally matured as a farid of her time, the yaktos of her own age. Allah gave her such a beauty, knowledge, that she had no equal in beauty."These descriptions belong to the image of Mary in the"story of Ali Nuriddin and Mary Zunnoria". [4,66]

In the story" Anisuljalis with two ministers", we also read the description of Anisuljalis in the following lines:"this girl read a lot: as long as she studied beautiful writing, method fiqh, science of religion, knowledge of medicine, music." [1,293]

In fact, if we look at history, the spread of Islam, from the moment when the Qur'an and hadiths were programmed to lead a way of life, has made a radical turn in the social and legal cases of Eastern Muslim women. It is no secret that Arab women did not have any rights in marriage, divorce, inheritance during the time of ignorance. And in the Islamic period, they created wide opportunities in this regard.

Therefore, during the period of the wide spread of Islam, a Muslim woman was able to take her place. Among a number of Islamic scholars, poets, writers, now we can also see Muslim women. Their names were mentioned in history. By the way, in 1326 year (in 726 Hijri) gave two women – one was Muhammad al-Harroni's daughter, Aisha Ummu Muhammad, and the other was Kamoliddin Ahmad ibn Abdurahman Al – Muqani's daughter Zaynab had a diploma of the famous Ibn Butauta madrasah in Damascus, and awarded her iqbalas the title of "Sheikh Saliha". [6,13].

Apart from them, Ummu Abdullah Muhammad (P.17), the daughter of Qazi Shamsuddin, a descendant of Vojihuddin Hanbalthe a.v.from the hadiths of the Prophet Muhammad (SAV) said that the educator was a famous Muhaddisa, she was invited to Egypt and studied science in the presence of Amir Sayfiddin Arjun, Qazi Karimuddin Al-Kabir az-Zahabi, Qazi Bahriddin al-Misri, Sheikh Saladin al-adi and others.B.Uchok notes in his research.

It is noted in the sources that Ibn Nasr Ahmad's daughter Shuhda also got knowledge from famous faqihs and after obtaining her document, the palace in Baghdad gave lectures to a large community of all, which was named "Fahr un-Niso", died in 1178 year (Hijri 574) at the age of 90.

B.Uchok brings many of the same women's fasting in his study. Chunanchi, the Prophet Muhammad (SAV) on the distribution of Hadith after the death of the three women of that breed played an important role, especially in the enjoyment of them (r.the a.the daughter of Abdulvahhab ibn Umar ibn Kasir, having got education from the famous sheikhs of her time, was the daughter of the four caliphs of the 9th century (B.C.), who took an important place in the complexities of the four caliphs - Hazrati Abu Bakr (632-634), Umar (634-644) and Usman (644-656) periods .They will be listed until they became famous under the name "St. ul-Qudat" (the Lady of the veterans)in XV). [6,14].

We can be sure that the image of such wise girls in"A Thousand and One Nights" is that B. Uchok was wrote the image of improvisation of the listed Eastern Muslim women in his works.

The other stories of the work continue the topic.

The pearl of the work "A Thousand and One Nights" is the story "Kanizak Tavaddud". It is also not surprising that this story takes the name "pearl of the work". In this story, the worldviews of the great religious debates, the knowledge of the women of the East Muslima, the medical, chess, as well as the broad encyclopedic knowledge of the reading chapter were reflected artistically.

In the story, the efforts of a proprietor of Baghdad, called Tavaddud, to save his master, who has entered the street of economic hardship, from this depression, were described in a wonderful style, in an interesting way. Including read in the story:

"All the property of Abu Hassan is over and there is nothing left but this concession. Then kanizak said: "O begim, take me to the presence of Haron ar-Rashid, the Emir of the believers...if you take the exam, the dignity will be known....say that". [4,126].

Kanizak will be told, that is, with the proposal of Tavaddud, her master will take her to the presence of Haron ar-Rashid.

"The Caliph asked:" O, Tavaddud, which of the sciences do you know best? Tavaddud said: "O caliph, I know the science of spending and nahv, the jurisprudence of poetry, the interpretation of the Qur'an, as well as the science of musical science, the science of the distribution of inheritance, the calculation, the science of measuring the Earth, the legends about the ancient people. I read the Qur'an again with seven and ten recitation.....I know the Presidium-the science of politics, the science of geometry, philosophy, wisdom, logic, planted fascism-maturity, and many different sciences have been preserved in my memory. I am also a fan of poetry, I can play ud..." [4,136].

The female breed, which had so much knowledge in the past, was able to fully convey to us in the work "A Thousand and One Nights". Also, through the stories in the book "A Thousand and One Nights" enough imagination can arise about the intelligence of medieval Muslim women. And this, we can not fail to admit that the fairy tale is a typical representative of real persons in life.

In the process of the story, the scientist of the time of the Caliph collected the fuzalos in his palace and invites them to a discussion with Tavaddud.

Kanizak entered into a discussion with faqih the first. She perfectly answers her questions about Islam, the Qur'an, Sharia. At the end of the discussion, Tavaddud addresses the Islamic lawmaker with a question, while the faqih cannot answer his difficult question. After that, Tavaddud answers the questions of one by one: a medical scientist , an astrologer and a Hakeem wisely, respectively, she also addressed them with a question. However, none of them could get a satisfactory answer. So the canine began to communicate with all of them and won. Finally, she saved her master from a difficult situation and all scientists achieve her consolation. The Caliph gives several thousand gold to the victorious Tavaddud and her master and sent them home.

That's also the aspect of the story that surprises the reader, that is, kanizak, with a sharp mind, a clever mind, led a discussion with all the scientists in the palace of the caliph and admired everyone.

There is no doubt that the image of Tavddud, standing in the center of the story, is the embodiment of the Muslim women of the Eastern mind. It contains Eastern shy, Islamic morality, thoughtful intelligence. It also embodies the image of a woman who perfectly mastered all the sciences of her time, an entrepreneur, a thirst for knowledge.

In the presence of his caliph, standing behind the scenes, the eloquent dialogue with scientists is an artistic expression of the true sharqana.

At the same time, with Tavaddud on the question and answer in the story, it is possible to notice that the scientific debate of the scientists of the sphere is debated, as well as the idea of making sharqana clever in the case of the woman's superiority over them. It is worth noting that in these essays in the story it becomes clear that Islam is not indifferent to women's education and upbringing.

Lines that praise women entrepreneurship can also be read from the same stories. The entrepreneurship of the Emerald in the story "Ali shor with the Emerald" mentioned above is reflected in the footage of the Emerald saving him from this misery at a time when Ali Shor spent the remaining property from his father and became helpless. Ali shor, who bought an emerald from the Kanizak market (for 900 Dinar of Emerald), brings her to his empty house. "When the girl saw this, she gave Ali Shor another 100 dinar of money next to him and ordered him to bring palos and and dishes from the market. The guy did it as the girl said. The rest of the money was assigned to bring food, drink, enough silk to a veil, a white and red dice, and silk of seven different colors." [3,134]. Starting with the early emerald silk and colorful and brought into the hands of the shayini and the gilded began to differ on it. First a picture of birds, then a picture of a wild animal on the edge. He spent eight days working on this. When the curtain was ready, he gave it to his master and appointed the sale to the market for 50 dinors. In the same taxi they went to work for money, which is suitable for household rocking, because of the girl's craft.

We can witness that entrepreneurship is a women-specific trait, as shown in other stories. Even in the "Story of Ali Nuriddin and Mary zunnoria", the narrative of events goes like the story above. Bunda also tries to save Ali Nuriddin from poverty through his craft, Mary.

Mary borrowed 50 dirhams from attor, took five different silk threads to her twenty dirhams, and appoint Ali Nuriddin to bring meat, bread, fruit, drink and berries to the remaining 30 dirhams. They prepare and eat food with what they bring from the light. When Nuriddin goes to sleep, Mary goes to work. "When the guy went to a drunken sleep, the girl got up, opened her butt and took out a Category leather bag from her and took off her mouth, although she took two long nines from him and the work began to sew. After the girl thoroughly decorated the zunnor, wrap it and put it under the pillow. In the morning he took zunnor and appointed Nuriddin to buy him 50 dinor."[5,476]. Well, zunnor girl incidentally 50 dinor sold. In this kind of expression of stories, it is not difficult to notice that in its contemporaries lies the idea of demonstrating that a woman can practice her business and smartly. In this regard, it can be said that a similar aspect of the above stories is that more and more hodgas can buy canopies "from the canopies market, the canopies are sold at their own discretion to the hodgas, the economic depressed state of the hodgas, the canopies are artisan, entrepreneurial, they are trying to save their masters from a crisis, both women – Mary and emeralds However, it is also necessary to mention that the recommendations for further events will escalate in a different way. And this is another proof that the author of "A Thousand and One Nights" is not one person.

In addition to the above-mentioned stories, stories permeated with the idea of raising the level of knowledge, wisdom of the female breed to the breasts are told in the game. Of these, we can cite an example of "Abul Isa and qurratul-Ayn", "The story of King Omar ibn Nu'man, his sons named Sharrikon and Zuulmakon " and many more stories.

"The story of King Omar ibn Nu'man, his sons named Sharrikon and Zuulmakon" [2,99.] is considered one of the most voluminous fairy tales of the work. In it, the bookstore faces different types of women. The plot of his grandmother Zotudahahi is exciting to the reader, if chunanchi, the nobility of the Roman Malika Abriza, one-word, heroic behavior is expressed in beautiful plaques. At the same time, the educated, cleverness of the sister Nuzhatuzzaman Zuulmakon is told in beautiful tablets. Remember, with Zuulmakon, his sister Nuzhatuzzamon embark on a pilgrimage. When they come to the city of Jerusalem, Zuulmacon suddenly falls ill and falls ill. And the sister has to stand up for her brother-spending her thighlasa also does not come to a conclusion.

When there is no end to Egulik, Nuzhatuzzamon goes out with the intention of making money ozroq by doing someone's service. The same robber falls into the hands of the old man, suffers a lot of jabru jafo and is sold to one trader.The trader in turn intends to weigh it on the governor. In the same process, the girl's erudition becomes known. "Trader:"...Do you remember the Qur'an?""Yes," said the girl, "I know the science of wisdom and medicine, I read The Book" Muqaddimat ul-Ma'rifat". Bull, I know the science of member structure. I have read the books of Shafi'i, Hadith, nahv, the science of logic and explain the knowledge, have knowledge of the science of accounts and debates. I have a message from the science of religion, prayer times, Astrology. I have also had discussions with many scholars in many Sciences" [2,101.],- shows that Nuzhatuzzamon possesses extremely strong knowledge. The merchant will lean and weigh it on the governor of Damascus. The governor of Damascus tries to test his intelligence and calls the scribes. Nuzhatuzzamon stands behind the scenes, next to the collected scribes, provides detailed information about the administration of the country, the governors of the royal circulation and Sharia Affairs, and about the rules that are worthy of them, about the manners and morals of the past caliphs, about the admonitions of the pandu that they have done. [2,102.]

So, the above examples draw the following conclusions:

1. The theme of the stories of the work "A Thousand and One Nights" is very rich and insightful. All of the stories (except stories about"poultry and animals") are polished with the image of women. And this led to the fact that the events in the stories turned out to be more attractive and interesting.

2. As we see, the image of women in the proverbs "A Thousand and One Nights", which we see above, is not created by the people themselves. They are a real typical image of intelligent women of that time.

3. The image of Nuzhatuzzamon, given in the story, is a typical representative of the Eastern woman of her period. Bunda also saw the image of sharqana ibo-hayo, a wise, wise woman. B as proof of our opinion.Let's look at the information that the drone gives. He writes: "During the time of Khalifa Al - Muqtadir (908-932), all state affairs were under the control of his mother. He appointed a woman named Sumail as the minister of the Palace, who entrusted her with the solution of problematic questions. Sumail settled in Baghdad in the building where the mother of the Caliph built, collecting faqihs, veterans, statesman to the right and left side, every Friday he conducted excavations and made a decision and signed his own. Similarly, the mother of the Khorezm King Alouddin Muhammad (1200-1220), Turkon-Hatun, also reported that nasafi, a historian, ruled the Khan's "yuluk" convoy and, having considered the complaints received from the state officials, imposed penalties on them."[6,15-16.]

4.Also, the images of Nuzhatuzzamon or Tavaddud, which are described in the stories, as well as the IBA facets of the life of the caliphs mentioned in their language, are an idea for the reader. As for the words spoken in the style of the band-reminder, they serve goodness, truthfulness, justice, and, well, all-of-all, a beautiful person.

5. Through some gestures in the story it is possible to observe that a special emphasis is placed on the moral and spiritual upbringing of a woman. This, in turn, encourages the reader to take an example from the efforts of his hero. Because the idea that an Ilmu-skilled person will never be a choir is the base content-provision of Proverbs with the content of "A Thousand and One Nights".

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QR – Issue QR – Article

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FACTORS OF FORMATION OF PROFESSIONAL COMPETENCE IN THE CONTEXT OF INFORMATION EDUCATION

Abstract: *The essence of a competent approach to education and the relationship of the main features of this approach, as well as the pedagogical conditions for its implementation, the theoretical and practical study and design of competence at a modern level, the formation of professional competence.*

Key words: *professional competence, pedagogy, information, civil engineer, method, educational process.*
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Introduction

Globally, research is being conducted to develop a scientific basis for the formation of professional competence in the field of descriptive geometry engineering and computer graphics, to improve modern forms and methods of teaching based on a competency-based approach. Also, the development of a methodological system based on modern teaching methods and tools in accordance with the content of education to determine the professional competence of future teachers of descriptive geometry, engineering and computer graphics, and the development of interactive technologies and tools for improving the content of teaching materials. the need arises. Based on this need, it is necessary to improve the requirements for the content and quality of professional training of future teachers, the development of methods and didactic bases of teaching general subjects, the creation of modern software tools for knowledge assessment.

The task of further development of the Republic of Uzbekistan is "further improvement of the system of continuing education, increasing the capacity of quality educational services, training of highly qualified personnel in line with modern needs of the labor market, introduction of international standards for assessing the quality of education." The educational process is faced with the problem of allocating study time to the creative work of future engineers. This leads to the intensification of their educational activities and the use of modern information technologies.[1]

K.Grebennikov, L.Ivannikov, O.Krainova, O.Odintsova, N.Petrova, E.Tretyakova, L.Turanova conducted research work on the scientific and theoretical foundations of computer graphics and its application in the educational process. In their research, the methodology of studying computer graphics is reflected only in the training of specialists in narrow areas, that is, in the training of teachers of mathematics and computer science in specialized disciplines of professional colleges.

Shounak Mitra from India, one of the foreign researchers, “Teaching the application of tasks in teaching engineering and computer graphics to manage SMART infrastructure in construction” These are two technologies that are applied innovatively in various fields, including engineering, agriculture, education and so on. the idea of allowing computer decision making is not the latest innovation. This research work is to manage intelligent infrastructure and control it through a computer. In his research, he worked on two topics. The first is sensor control and the second is remote control. [2]

The essence of the competent approach to education and the relationship of the main features of this approach, as well as the pedagogical conditions for its implementation, the theoretical and practical

study and design of competence at a modern level, the formation of professional competence. Sh.S.Sharipov, M.M.Vakhobov and others, foreign scientists A.A.Verbitsky, I.A.Zimnyaya, Yu.G.Tatur, A.V.Khutorskoy, SAMeriot, J.Raven, DSRychen and others. The quality of training of professionally competent people studied by other scientists and improving the quality of teaching in higher and secondary special education is scientifically based.

II. Methods

Like any pedagogical system, the system of developing the professional competence of the future engineer-builder in the process of teaching graphic sciences provides interaction of students, professors, teachers, learning objectives, content of graphic sciences, organizational forms of teaching and didactic processes. This interaction is reflected in the structural model of developing the professional competence of the future bridge builder.

In this pedagogical system, the system-forming element is the learning objectives determined by the social order of the society, as opposed to the features and requirements of modern professional activity.

The activity of a civil engineer. Each element is a complex subsystem in which the interconnected activity elements have their own structure. A change in a system-generating element causes changes in all other elements of the system. Thus, the replacement of traditional educational goals (subject areas) with a broader component of the professional competence of the specialist requires the organization of all other elements of the pedagogical system.[3]

When we start designing the technology of teaching graphic sciences to students majoring in "Engineer-Builders", it should be noted that the process is an interconnected pedagogical effort aimed at solving problems such as teaching technology:

- preliminary design of the educational process with the implementation of this project;
- definition of educational goals and objective control over their achievement,
- integrity of the structure and content of the project;
- optimization of teaching methods, forms and tools;
- Availability of quick feedback, which allows you to adjust the learning process

The design of science teaching technology can be presented as a procedure for describing the system of interrelated pedagogical processes and ways to develop the components of professional competence of the future specialist through the studied topic. The construction of teaching technology is related to the selection and composition of teaching materials, the creation of the methodological framework necessary for the implementation of the developed project.

P. I. Obraztsov In his article "Professional-oriented educational technology: design and construction features" [4] presents the following algorithm for the design and construction of educational technology:

a) definition of the purposes of diagnostic training - description of the expected didactic result in the measured parameters;

b) substantiate the content of training in the context of the future professional activity of the specialist;

c) determine the structure of the content of the educational material, its information capacity and the system of semantic connections between its elements;

d) selection of procedures for monitoring and measuring the quality of curricula and methods of individual correction of educational activities;

e) technological presentation of the project of educational technology maps.

Based on this algorithm, it is possible to present the process of designing and building a professionally oriented technology for teaching students of the specialty "Engineer-builders" in graphic sciences in the form of diagrams. This diagram takes into account the logic of the competency approach in designing teaching technology.

The main objectives of teaching graphic sciences are defined as the development of components of the professional competence of the future specialist in the learning process. However, a number of conditions are regulated:

Learning objectives should be consistent with the list of components of professional competence developed during classes in graphic sciences and be diagnostic.

Pedagogical innovations and pedagogical reforms are closely linked. In our view, innovative pedagogical activity is not only an important condition for reform, but also a means of preparing for reform, as it serves to form in teachers a mindset and activity focused on innovation.

In this connection, it is worth mentioning the theory of the gradual formation of mental movements. This theory has been directly applied in the implementation of the management function of education in higher education institutions. The theory of the gradual formation of mental movements in the process of our research has made it possible to distinguish the most optimal, purposeful material, to plan the educational process optimally, to see the innovative aspects of education.

Some scholars interpret innovation and creativity as equal concepts. In fact, creativity is a new approach, the ability to quickly adapt to the lessons and master them quickly.

By diagnosing the process of training future professors and teachers in higher education institutions, analyzing the situation in practice, we have identified the following factors of a competent approach to innovative training of future college teachers.

Orientation of educational motivation in future teachers in relation to pedagogical disciplines;

Professional motives and professional-pedagogical orientation of students;

Methods of qualimetric assessment of students' knowledge, skills and abilities;

Conditions for the formation of competencies in professional pedagogical activity in students (person-centered interactive education, creative clubs, project competitions, professional orientation circles).

We have formed a conceptual model of a competent approach to innovative training of future college teachers, which combines the factors of formation of professional competence in future teachers and the content of innovative training. The basis of this model is a complex program "Innovative forms, methods and technologies of organization of educational work in higher education institutions", which combines the model of professional activity and competence levels of future civil engineers.

In the complex program "Innovative forms, methods and technologies of organization of educational work in higher education institutions" the following tasks were set in the fall:

In the learning process:

implementation of lesson projects based on informative, problem-based, playful elements in order to form the levels of professional competence in the innovative training of students;

In the process of teaching pedagogical disciplines, case studies related to the future practical activities of future teachers have been developed, and the main focus in the criteria for assessing students' knowledge is to highlight the importance of theoretical knowledge in practice;

In the process of independent learning:

implementation of project assignments aimed at professional activities;

Conducting student projects on "My initiative in education."

In addition to the auditorium, the activities of the student club "Insight" (Appendix b) and the circle "School of Skills". The circle of "School of Skills" focused on the following issues:

Conclusion.

Innovative approach to the formation of professional and pedagogical competence of specialists of higher education institutions in modern conditions is associated with a number of issues (orientation of students to pedagogical and psychological disciplines, professional pedagogical orientation, meeting professional and educational needs, social order and state educational standards).

Specialist training is a complex interdisciplinary system-structural process that involves general, psychological, pedagogical and subject-based training based on the innovative orientation of the tasks of the modern educational process, constant innovative and traditional content dialogue, innovative needs of society and the deep characteristics of students and teachers.

In the process of innovative training, the student learns the meaningful foundations of innovation in pedagogical activity, which ensures the teacher's activity as a subject of professional labor. The evolving tasks of innovative training affect the innovative orientation of future engineers-builders in their thinking, pedagogical potential and innovative perception, creative approaches to pedagogical activity.

Competent approach to the training of future civil engineers depends on the following factors: diagnosing the process of training future civil engineers in higher education, analyzing the practical state of student training.

Professional motives and professional orientation of students;

Self-professional pedagogical education and differentiation;

Methods of qualimetric assessment of students' knowledge, skills and abilities;

It is expedient to prepare conditions for students to form competencies related to professional pedagogical activity (person-centered interactive education, creative clubs, project competitions, professional orientation circles).

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CULTURE OF SPEECH AS A PERSONAL QUALITY OF INTERNAL AFFAIRS EMPLOYEES

Abstract: *The article tells about the importance and significance of the speech culture of employees of the internal affairs bodies, examines the shortcomings in the process of preparing future employees for law enforcement, gives some principles from the theory of the culture of speech, as well as the statements of scientists.*

Key words: *ethics of speech, society, communication, interaction with others, an employee of the internal affairs, authority, legal awareness, culture of society.*

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КУЛЬТУРА РЕЧИ КАК КАЧЕСТВО ЛИЧНОСТИ СОТРУДНИКОВ ОРГАНОВ ВНУТРЕННИХ ДЕЛ

Аннотация: *В статье рассказывается о важности и значимости речевой культуры сотрудников органов внутренних дел, рассматриваются недостатки в процессе подготовки будущих сотрудников к правоохранительной деятельности, приводятся некоторые принципы из теории культуры речи, а также высказывания учёных.*

Ключевые слова: *этика речи, социум, общение, взаимодействие с окружающими, сотрудник органа внутренних дел, авторитет, правосознание, культура общества.*

Введение

Важнейшим условием возникновения и развития профессиональной направленности, а затем и становления специалиста является интерес к учебным предметам специального цикла, применение новых форм, методов, программ и перспективных инициатив, способствующих развитию высшего юридического образования, является эффективным внедрением результатов научных разработок в законотворческую деятельность. [1]

На сегодняшний день я успешно закончила 2-курс Специализированного филиала Ташкентского государственного юридического университета, после окончания сессии, студентов направили на производственную практику в районные управления Органов внутренних дел города Ташкента и Ташкентской области. Можно сказать, что основной целью процесса обучения студентов является получение знаний и умение их применять на практике, тем самым учащиеся закрепляют и совершенствуют свои знания, применяют и приобретают профессиональные навыки, сравнивают действие теории и законов с применением их в реальных ситуациях и правоотношениях. В ходе прохождения практики, студент глубоко изучает и анализирует окружающее его общество, приспосабливается к нему, отмечает для себя какие качества, навыки целесообразно использовать для успешной

деятельности сотрудников органов внутренних дел при выполнении ими своих задач. В процессе прохождения практики, при общении с гражданами, а также и сотрудниками органов внутренних дел, мы уяснили какое фундаментальное значение, имеет наличие у сотрудников языковых навыков, культура их речи, умение налаживать контакт посредством речи с окружающими.

Пути формирования профессиональной коммуникативной компетенции особенно четко выявляются при организации подготовки будущих сотрудников правоохранительных органов, для которых коммуникативная компетенция – один из основных показателей профессионализма.[4]

Как утверждает Е.А. Путилова: «Общение – это всегда взаимодействие субъектов, в процессе которого возможен обмен информацией, опытом, компетенциями, а также результатами деятельности» [7].

Любой человек может быть потенциальным субъектом общения, независимо от пола, расы, национальности и других качеств. Общение может быть, как прямым, так и косвенным. При прямом общении, лица непосредственно вступают в контакт друг с другом, а при косвенном имеются определенные границы между лицами в виде времени и пространства. Важность культуры и этикета речи сотрудников при общении ознаменована тем, что при выполнении своих задач, им часто приходится вступать в контакт с различными, незнакомыми им людьми, у которых есть свои особенности, неприсущие другим т.е. характер, мировоззрение и другие составляющие личности. Так, путем общения, коммуникации с окружающими, сотрудник внутренних дел решает определенные служебные вопросы, накапливает определенный опыт. Причем надо отметить, что вопросы касательно любой сферы жизни, так как сотрудник органа внутренних дел прежде всего юридически обучен, а это означает, что в процессе обучения сотрудник, усваивает большой объем гуманитарной и общественной информации. Кроме того, сотрудникам внутренних дел приходится разрешать и те вопросы, которые могут нести неблагоприятные последствия субъекту общения, например, при совершении преступления.

Кикоть В.Я. отмечает, что нравственная сторона позиций, решений и социального результата общения играет огромную роль. [6]

Этика речи сотрудника прямо влияет на то, как будут воспринимать его люди, его коллеги. Таким образом, знание и владение этикой общения является одним из признаков профессиональной культуры сотрудника правоохранительных органов, его своеобразной визитной карточкой по которой будут оценивать ум исходя из логичности и аргументированности речи сотрудника, его эрудицию основываясь на выразительности, лексическом богатстве речи, а также его воспитанность, интеллигентность опираясь на тон речи сотрудника органа внутренних дел в целом.

Выше мы привели некоторые критерии, которым должна отвечать речь сотрудника органа внутренних дел. Так, кроме выше перечисленного, для лица, чья профессиональная деятельность непосредственно связана с взаимодействием с окружающими путем общения, необходимо, чтобы его речь была достаточно аргументированной, логичной, эмоционально сдержанной, но и не носить менторский характер иначе такое общение не приведет к намеченной цели, и не даст результатов, которые поставил перед собой сотрудник органа внутренних дел изначально. Какими бы благородствами ни обладал сотрудник, они могут утратить свою ценность, если он не владеет определенными языковыми навыками, отсутствует этика общения в целом. К.Д. Ушинский говорил: «Язык народа – лучший, никогда не увядающий и вечно вновь распускающийся цвет всей его духовной жизни… Он в то же время является величайшим народным наставником, учившим народ тогда, когда не было ещё ни книг, ни школ и продолжающим учить его до конца народной истории».

Почему же речь, его культура имеют важное значение для сотрудника органа внутренних дел? Как мы отмечали выше, основной работой сотрудников внутренних дел является связь с населением при выполнении ими таких задач как: информирование, проведение профилактических работ, а также раскрытие преступлений. Своеобразной невидимой нитью, которая связывает сотрудника и граждан выступает язык сотрудников – речь грамотная и доброжелательная, доходчивая и понятная, информационно насыщенная, от которой веет уверенностью в защите со стороны государства в лице сотрудников органа внутренних дел. Важно отметить, что на сегодняшний день, в большинстве случаев, население не удовлетворено качеством общения сотрудников внутренних дел с гражданами. Данный феномен вытекает из того, что в органах внутренних дел имеются некоторые сотрудники, которые не могут найти подход к человеку из-за низкого уровня коммуникативных навыков, умений и компетентности. Откуда это вытекает? Чтобы ответить на этот вопрос надо помнить, что сотрудник поступая в образовательное учреждение, связанное с правоохранительной деятельностью знает с кем он в дальнейшем будет работать, т.е. с населением и будет разрешать их проблемы. В данном образовательном учреждении нужно ввести такие предметы как

культура речи, поведенческая психология, а также иные гуманитарные, общественные, социально-профилактические науки, которые акцентируют внимание на речевое общение сотрудников органов внутренних дел с обществом. Перечисленные учебные дисциплины необходимо развивать, а также экзаменовать по всей строгости при окончании будущим сотрудником учебного заведения, а также в дальнейшем при прохождении сотрудником повышения квалификации, данные предметы должны быть введены в учебный курс. Независимо от того какую должность занимает сотрудник внутренних дел, он должен соблюдать правила культуры общения и взаимодействия с социумом в совокупности. Иначе, отсутствие языковых навыков, этики общения сотрудника внутренних дел могут привести к недоверию со стороны общества, спад авторитета сотрудников внутренних дел. При этом сотрудник не должен превышать свои должностные полномочия и злоупотреблять своим служебным положением, и при общении с гражданами не должен выходить за рамки дозволенного. Как отмечает Воронцова Т.А. в своем учебном пособии «Культура речи»: «речевая культура – это связь диалектическая: язык отражает те социально-политические процессы, которые происходят в обществе, и в то же время определенным образом формирует наше мировоззрение, а также тот факт, что речевая культура не может рассматриваться в отрыве от культурного состояния общества в целом». [5] И в правду, не только сотрудник, но и всё общество обязано владеть определенной культурой, в том числе и культурой речи.

Исходя из теории культуры речи, надо отметить, что речь состоит из трех компонентов как: *нормативный* – умение правильно использовать нормы языка, а также соблюдение норм литературного языка, *коммуникативный* – умение правильно выражать мысли и донесение его до собеседника; *этический* – наличие знаний о правилах языкового поведения в определенных ситуациях, и умение их реализовывать на практике. Все выше перечисленные компоненты речи играют важную роль в этике общения, а также когда речь идёт о культуре устного или письменного выступления сотрудника органов внутренних дел, независимо от того какую должность он ни занимал бы, где бы ни выступал. И устная и письменная речь могут служить доказательством того, какой человек изнутри и снаружи, дают возможность оценить человека с интеллектуальной точки зрения, эрудиции. Таким образом, речь разделяется на устную и письменную и несмотря на различия этих видов речи, им присуще и общие черты, что позволяет выделить общие требования к культуре речи человека. Так, как сотрудник внутренних дел является публичной личностью, надо отметить, что особенно важную роль играет именно речь сотрудника пред аудиторией, в СМИ. Когда сотрудник при общении с населением, с большой аудиторией показывает свои языковые навыки, культуру речи, ведь именно эти составляющие сотрудника внутренних дел являются тем признаком, по которому оценивается его авторитет, положение, а также уважение среди населения. Как отмечалось выше, речь сотрудника не только его характеристика, но и средство воздействия и влияния на окружающих, оказывающее на них управленческое и воспитательное воздействие. Культура речи сотрудников выражается тогда, когда как бы ни было трудно в любой ситуации, сотрудник проявляет сдержанность, так как он является охранником правопорядка, а правопорядок всегда связан с воспитанностью, высоким уровнем интеллигентности и патриотизма.

В основном, требования этикета к устной и письменной речи заключаются в том, чтобы она была содержательна, убедительна, ясна, понятна, логична, доказательна, чиста, выразительна. Речь сотрудника внутренних дел должна содержать определенную информацию, которая представлена в полном и достаточном виде. Также не стоит забывать про доказательность и убедительность речи, которые предполагают, что вся сказанная информация объективна и соответствует реальной действительности, и то, что собеседник убежден, что эта информация важна и целесообразна для него. Конечно же, речь должна предусматривать определенную логическую цепь, сказанное не должно противоречить основной мысли общения. Речь – ясная и понятная, означает, что говорящий правильно и внятно выражает свои мысли, которые в свою очередь доходчивы для слушателей. Также немаловажно и тон речи, он должен быть мягким, спокойным и уверенным. Выше перечисленные требования к речи являются фундаментальными к любой форме устного или письменного обращения и тем не менее они должны сочетаться с ними, учитывать их особенности. Таким образом, формы устной и письменной речи могут отличаться только их эмоциональной окраской и содержанием.

У каждой вещи бывает хорошая и плохая сторона, также и абстрактные вещи обладают своими положительными и негативными признаками. Так, при помощи языка мы можем общаться, обмениваться мыслями, идеями с окружающими, выражаем свое мнение, открываем новые возможности для себя, при условии, что мы правильно используем язык и не переходим границы, нормы языка. Л.Н. Толстой говорил, что «Точность словоупотребления – основной закон культуры речи». В некоторых случаях, язык может

нести негативные последствия для человека, если он плохо владеет им, не следит за своей речью, часто употребляет жаргонизмы, вульгаризмы, сквернословит, повышает голос и переходит на крик. Исходя из этого, приходит мысль, что сотрудник внутренних дел должен уметь выражать свою мысль вежливо и кратко, не обижая собеседника, а также уметь выслушивать собеседника.

Необходимость подготовки современных кадров, знающих несколько языков, ведение научных работ на русском языке, усовершенствование методологии языкового преподавания, всё это требование рынка труда. [3]

В свою очередь пустые разговоры на различные темы, многословие сотрудника внутренних дел утомляет собеседника, затрудняет ему уяснить главный смысл сказанного и значительно снижает качество беседы. Когда профессиональная речь сотрудника органа внутренних дел не отличается своей культурой, и если сотрудник во время коммуникации допускает использование жаргонизмов, вульгаризмов, и так называемых слов «паразитов», это говорит о том, что сотрудник неграмотен, не следит за своей речью**.** «Можно с уверенностью сказать, что человек, говорящий на чистом, хорошем, богатом языке, богаче мыслит, чем человек, который говорит на плохом и бедном языке» - писал А.Н. Толстой.

Сотруднику необходимо постоянно совершенствовать свою речь, чтобы успешно решать служебные задачи. Для этого он должен работать над собой, читать различную литературу, пополнять словарный запас, контролировать грамотность устной и письменной речи.

В заключение, хотелось бы привести слова В.В. Виноградова - «Высокая культура разговорной и письменной речи, хорошее знание и чутьё родного языка, уменье пользоваться его выразительными средствами, его стилистическим многообразием – самая лучшая опора, самое верное подспорье и самая надёжная рекомендация для каждого человека в его общественной и творческой деятельности».

Речевой этикет строится с учетом особенностей партнеров, вступающих в коммуникацию, а также ситуации общения. В каждой ситуации соответствуют определенные речевые формулы, знание которых необходимо для будущих инспекторов по профилактике правонарушений. [2]

Таким образом, речь человека способна охарактеризовать наиболее полнейшим образом личность человека. Отсюда следует прямой вывод: умение общаться с людьми есть важнейшее профессиональное качество, которому человек обязан учиться и совершенствовать всю свою жизнь не зависимо от того является ли это лицо сотрудником органа внутренних дел, начальником или другим высокопоставленным лицом.

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PROBLEMS AND WAYS OF IMPROVING THE CALCULATION OF THE GROSS DOMESTIC PRODUCT OF THE REPUBLIC OF UZBEKISTAN ON THE BASIS OF INTERNATIONAL STANDARDS

Abstract: *The article discusses problems and ways of improving the calculation of the gross domestic product of the Republic of Uzbekistan in the current circumstances. The authors present features of the calculation of gross domestic product and recommendations for its improvement. The main directions for increasing the gross domestic product of the Republic of Uzbekistan in order to improve the quality of life and standard of living of the population of the country have been defined.*

Key words: *gross domestic product, system of national accounts, final consumption, gross fixed capital formation, value added, gross national income.*

Language: *English*

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Introduction

Much work is being done at the international level to improve the statistical methodology, to expand the information base for the compilation of macroeconomic indicators and to make the resulting data comparable. In particular, the System of National Accounts (SNA 2008), developed in 2008 by a number of international organizations, occupies a particularly important place in comparative statistical analysis and assessment of the economies of United Nations Member countries. Accordingly, in many countries, special attention is now being paid to improving the methods of statistical compilation of macroeconomic indicators based on the methods of the System of National Accounts (SNA).

In a globalized world, a number of research studies are under way to improve the methodology for calculating macroeconomic indicators on the basis of international SNA standards and to conduct a statistical study of structural units in the calculation system. In particular, ways have been explored to improve the implementation of an integrated information system for macroeconomic indicators, a comparative assessment of the statistical information system, the introduction of a system of macroeconomic indicators and an automated information system, their comparative assessment as well as the creation of an open data portal. Currently, the main scientific areas are the introduction of integrated statistical information systems into modern management on the basis of international standards,

and ensuring transparency and openness of the data of the macroeconomic indicators system, Improvement of the database of macroeconomic indicators and statistical methods through effective use of international standards and principles.

Literature review

The theoretical and methodological issues of the methodology for calculating the macroeconomic indicators of the SNA have been studied in depth in the academic literature of foreign scholars. In particular, the problems are: ensuring sustainable GDP growth from market demand (J.Keynes) [1], calculating the gross national product by production method based on the table «input-output» (P.Stone) [2], simulating the factors influencing GDP (J.Marshall, J.Hicks) [3,4]. Calculation of GDP by expenditure-income ratio (E.Hansen, R.Dorbnusch, S.Fischer) [5,6], calculation of GDP by inter-industry balance sheets (B.Leontiev) [7], relationship between the money supply and GDP in the country (M.Friedman, K.R.McConell, S.L.Bru) [8,9]. Research related to the scientific and practical aspects of calculating the volume and growth of GDP has been studied to some extent by scientists from CIS countries: analysis and estimation of the sectoral structure of GDP (B.I.Bashkatova, V.I.Viyapin, G.P.Zhuravleveva) [10,11] Calculation of the regional composition of GDP on the basis of the principles of the System of National Accounts (Y.N.Ivanov, О.И Образцова, O.V.Kopeikina) [12,13], quarterly calculation of GDP (G.S.Kulagina, M.G.Nazarov, A.I.Ponomorenko) [14, 15,16], calculation of the share of the informal sector in GDP (B.T.Ryaubuskin, V.N.Salin, С.И.Кудряшова) [17,18].

Scientists in Uzbekistan have studied general aspects of improving methods of calculating GDP. These studies are continuing. In particular, in the studies of S.S.Gulyamov, S.V.Chepel, A.V.Vakhabov, G.H.Razyakova [19,20,21], attention is drawn to the need to take into account value added in the analysis of the sectoral structure of GDP and the development of forecast indicators, R.A.Alimov, B.K.Gaibnazarov, E.Abdullayev H.N.Nabiyev, A.Nabikhodzhaev, B.M.Mahmudov [22,23,24] considered problems of GDP estimation based on principles of national accounts and taking into account problems in international comparison of GDP, General theoretical aspects of the improvement of the GDP calculus system were considered in the studies of B.Y.Xodiev, S.S.Shodmonov, H.Jalilov, N.Tukhliev, K.K. Mambetzhanov [25,26,27,28].

However, in the research studies of the above authors, improving the methods of statistical calculation of macroeconomic indicators on the basis of the new standard of the System of National Accounts 2008 is not widely studied. From this point of view, the statistical calculation of our country's macroeconomic indicators based on the basic principles and recommendations of the System of National Accounts, based on the standards of the 2008 SNA, is important analysis of factors affecting them by statistical methods, statistical forecasting of trends in future development. As well, the studies provide mainly general information on methods and standards recommended by international organizations for measuring the volume and rate of GDP growth. At the same time, the development of the theoretical and methodological aspects of its calculation has not been given due attention and the problem has remained on the back burner.

Result and discussion

The theoretical and conceptual foundations of the methodology for calculating the gross domestic product have a long history. Although the economists of the last century did not carry out research on the methodology of GDP estimation, they provided the basis for its formation. At the time, they had studied such issues as the national product, national income, and tangible and intangible production. In this context, various international SNA standards and methods of calculating GDP are being developed and refined worldwide in their economic practices.

The most important and basic SNA indicator is the gross domestic product. The analysis of various descriptions of the essence of GDP given in the studies shows that a number of issues have been left out of the authors' attention. In particular, most of them, in describing the essence of GDP, were based on value, while it also has utility.

In our opinion, when describing the concept of GDP, it is advisable to take into account two peculiarities of the goods and services produced, that is, public utility and public value. Our work therefore describes GDP as follows: GDP is an indicator of the total value of goods and services of public utility and social value whose economic interest is directed to a specific territory and produced for final consumption by residents of a country in a given period (month, quarter, year).

The theoretical and conceptual foundations of the methodology for calculating the gross domestic product have a long history. Although economists at the time did not carry out studies on the methodology for calculating GDP, they provided the basis for its formation. At the time, they had studied such issues as the national product, national income, and tangible and intangible production. In this context, various international SNA standards and methods of calculating GDP are being developed and refined worldwide in their economic practices. Assuming that a country's economy is closed, GDP will be equal to the amount of primary production income received by all residents. But almost all countries in the world accept, in various forms, primary income from other countries and provide it to a certain extent. If we take

this flow of primary income into account when calculating macroeconomic indicators, we will have gross national income (GNI).

In accordance with the international standard of the 1968 SNA, this indicator is called gross national product (GNP). International standards for the 1993 SNA and the 2008 SNA treat GNP as an incorrect expression of the real level of production. Instead, GNI calculations were introduced. As a result, GDP is now regarded as the main macroeconomic indicator in all countries of the world, based on the international standard of the 2008 SNA.

In Uzbekistan, in the first years of independence, one of the priorities was to move from the current system of accounts and records to the standard adopted in international practice; to develop a system adapted to local conditions; International comparison and analysis of macroeconomic indicators. As a result, in 1993 the Law «On State Statistics» was adopted, and in 1994 the State Programme for the transition to the SNA was elaborated and approved. Work is currently under way to introduce the Act and the Programme of Innovation and Improvement. The introduction of the State programme for the transition to the SNA in our Republic made it possible, during the initial period, to carry out a number of tasks related to the calculation of GDP. These include the following: 1. The methodology for calculating GDP and its sectoral structure has been developed on the basis of the requirements of the international standard SNA- 93. 2. In order to avoid double counting, work has been done on the cross-industry balance sheet. 3. It is now possible to calculate the GDP and other macroeconomic indicators that have been created in the Republic on a permanent basis. Together with the above-mentioned positive results in this area, there are still some shortcomings that need to be addressed in the process of accelerating economic development. In Uzbekistan, in particular, during the period of application of the national economic balance sheet system, a great deal of experience has been accumulated in the field of intersectoral balance, which is the basis for calculating the gross social product (GSP).

The cross-industry balance sheet is also central to the Cost-Result Table, which is the basis of the System of National Accounts and is widely used in the analysis and forecasting of socio-economic processes. Despite many years of experience in the field of intersectoral balance sheet, the «input - result» table, which is the basis of the intersectoral balance in the Republic's National Accounts, has not yet been sufficiently developed. This makes it impossible to reflect fully the changes taking place in social and economic life. As well as Presidential Decision PP-3165 of 31 July 2017 "On measures to improve the work of the State Committee on Statistics" noted: «...the forms and methods used in practice for the collection, compilation and analysis of statistical data do not yet fully correspond to modern requirements and international standards» [29]. These circumstances point to an objective need to improve the methods of calculating macroeconomic indicators on the basis of the new, i.e. the 2008 SNA international standard.

Currently, the processes of calculating GDP by value added method are carried out in the republic on the basis of the requirements of the international standard SNA 2008. Value added can be represented, as a source of labour, by the entrepreneur (the owner of capital) and the State in its shares. From value added, the labour force receives its share in wages, the entrepreneur in the form of profits (interest), and the State in the form of taxes.

The subtraction method and the addition method can be used to determine value added. In the first variant, value added is expressed as the difference between the gross product and the intermediate consumption cost of its production, and in the second variant as the sum of all costs. The main uses of value added are:

1. Staff benefits (salaries, compensation, various bonuses).
2. Interest payments, dividends to owners of capital and other payments.
3. Investments in acquisition of property, plant and equipment and intangible assets.
4. Research and development expenditure.
5. Capital amortization payments.

The part of the value added that remains after the realization of all these costs is called the retained value added. If it is not sufficient to cover all of the above costs, then a negative value-added indicator is generated. This value of the indicator may in some cases be considered a normal situation. For example, in the case of massive investment in the economy, the negative value added is considered a natural position.

This being the case, this should be distinguished from the retained earnings of an enterprise. The difference relates mainly to capital expenditures. Capital investments are made from retained earnings, and retained value added is calculated after realization of capital investments. Consequently, in aggregate terms, retained value added is less than retained profit.

Studies have shown that the National Accounts of the Republic have not yet developed a method for calculating depreciation, which is one of the components of value added, in the process of calculating GDP. This, in turn, makes it impossible to calculate the value of the capital stock consumed in the economy. As a result, because value added is not fully calculated, the amount of GDP created in a country is also reflected in a corresponding reduction.

In our view, it is necessary to use the methods used in international practice and in the national accounts of developed countries to calculate the consumption of fixed capital used in all spheres and branches of the national economy.

At present, Uzbekistan uses the final consumption method in accordance with the decision of the State Committee on Statistics of 1 April 2011 for 3 [30]. The ordinance sets out the methodological provisions for the calculation of gross domestic product by final consumption method. (hereinafter Regulation).

In calculating GDP on the basis of the method of final consumption, the information on its composition makes it possible to determine the proportion of the value of goods and services consumed in order to satisfy the demand of economic agents and increase the national wealth of the country, Analyse the proportions of final consumption directions of GDP.

According to the System of National Accounts, the final consumption method of GDP is calculated as the sum of household expenditure, all expenditure of public authorities and non-profit (public) organizations providing services to households, Gross fixed capital formation and net exports of goods (goods and services), which in the form of a formula takes the form of:

$$\boldsymbol{GDP = CH + CG + CNPO + GFCF + N_{Ex}} \quad (1)$$

Here,

$\boldsymbol{CH}$ – household final consumption;

$\boldsymbol{CG}$ – final consumption expenditure of public administration institutions;

$\boldsymbol{CNPO}$– final consumption expenditure of non-profit organizations providing services to households;

$\boldsymbol{GFCF}$ – gross fixed capital formation;

$\boldsymbol{N_{Ex}}$ – net exports of goods and services.

In the calculation of GDP, the final consumption method sums up all final consumption expenditures of economic entities, that is, expenditures of households, non-profit organizations providing services to State and households. In addition, the balance of exports and imports of goods and services are accounted for.

The gross savings achieved in all sectors and branches of the economy are also taken into account in calculating GDP by the final consumption method. Gross savings are a source of socio-economic development, investment, modernization and diversification. That is why one of the most urgent tasks is to calculate gross savings and its constituent elements. Studies have shown that the methodological Regulation developed for calculating GDP by the method of final consumption does not fully take into account elements of gross savings. In our view, when calculating GDP on the basis of the final consumption method, it is advisable to include in gross savings, in addition to the elements specified in the Regulation, the value of purchased luxury goods. Such items include precious stones and metals, antiques, works and paintings, artistic works. But this does not mean that they should all be reflected as luxury goods on the balance sheet of the enterprise. Because there are situations where you can't get an income from them. Therefore, only luxury items purchased for profit should be included in this category as an alternative to investment.

Gross fixed capital formation is considered to be one of the factors that have a major impact on the country's GDP. In particular, the reinterpretation of research and defence expenditures in GDP plays an important role in the expression of a country's economic potential, the international comparison of its macroeconomic indicators, and the enhancement of the prestige of the international community.

At present, research and defence expenditures are not included in the gross fixed capital formation when calculating GDP by the final consumption method on the basis «Manual for the calculation of gross domestic product by final consumption method» [30]. This in turn results in these expenditures not being included in the final consumption of GDP. As a result, GDP is not high. In our view, research and defence expenditures should be considered as gross fixed capital formation. So that the results of research can be used in the production process several times over many years. However, there are studies in some areas that are spiritually useful to their owner or to the whole of society, but do not yield economic benefits. It is advisable to continue to consider their costs as intermediate consumption. Moreover, in the Republic's system of national accounts, military expenditures and the means to deliver them are not currently recorded as capital formation but as intermediate consumption of the State administration.

In our opinion, if the armaments and consumables in the armed forces are intended for service for more than a year, it would be appropriate to take into account expenses incurred as gross fixed capital formation. The significance of these recommendations lies in the fact that in the process of calculating gross domestic product by final consumption, GDP also increases significantly due to the increase in gross savings. This will further enhance the country's economic potential. When analysing a country's economic and social development, it is important to calculate GDP by short-term indicators, i.e., quarterly indicators. Research has shown that the State Committee on Statistics is currently compiling monthly and quarterly statistical indicators on a cumulative basis. This makes it impossible to analyse in depth the net (discrete) monthly and quarterly indicators, to further improve the quality of the data by comparing them by month and quarter within the year, and to analyse in depth the country's economic situation.

In our view, improving the calculation and analysis of quarterly macroeconomic indicators should be one of the priorities in the current period of accelerating current economic development. On the

basis of international experience, it may be concluded that it is advisable to introduce the collection and development of quarterly data at the sectoral level in order to improve the quality of quarterly macroeconomic indicators. As, macroeconomic indicators in discrete quarters have an analytical value, which has the following advantages: Discrete quarterly indicators can be compared with the previous quarter and the corresponding quarter of the previous year; detailed and highly analytical knowledge; quality and incremental indicators are improved; business cycle and short-term changes can be monitored; the possibility of macroeconomic forecasting and modelling is achieved, as well as the study of the dynamics of seasonality; timely forecasting of changes in the economy and implementation of economic policy measures are achieved; the number of errors in data submitted by enterprises and organizations is reduced.

In order to compile macroeconomic indicators for discrete quarters, it is advisable to develop a system of measures along the following lines: changes in the forms of State statistical surveys submitted to enterprises and organizations, to include discrete quarterly data; to ensure that all statistical and administrative data are presented for individual quarters; to calculate discrete quarterly indicators in constant prices, that is, to introduce the practice of calculation in annual average prices of the base year; Establishment of methods for reconciling data from discrete quarters with annual data, in particular the introduction of specialized software in this field; development of analysis of data from discrete quarters; on the basis of time series and seasonal adjustment methods. This includes the introduction of time series analysis, dividing it into seasonal, cyclic and non-traditional components. In general, it should be noted, by way of conclusion, that the introduction of a discrete method of calculating GDP in a country will make it possible to analyse short-term changes in the socio-economic development of the country, Develop forward-looking projections and development scenarios.

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LENDING OF ENTREPRENEURS IS AN IMPORTANT FACTOR IN ECONOMIC DEVELOPMENT

Abstract: *Small business and private entrepreneurship are one of the growth points of the economy, an important source of employment and the simplest way to reduce poverty. The adoption of the Resolution of the President of the Republic of Uzbekistan dated October 13, 2020 No PP-4862 "On additional measures to improve the system of entrepreneurship and development of entrepreneurship"[2] is another incentive for the development of entrepreneurship. It is very important today that it is tasked to form an integrated system of lending to businesses, based on foreign experience, consisting of the possibility of obtaining complex and complementary loans. Financial support of business entities on the basis of loans has been identified as one of the main directions of the ongoing reforms in the country. The Action Strategy for the five priority areas of further development of the Republic of Uzbekistan for 2017-2021 sets the task of "further expansion of lending to small business and private entrepreneurship" [1]. In particular, it is important to scientifically substantiate the accumulation of extensive practical and rich experience in business lending in economically developed countries, the study, generalization of these foreign experiences and their use in the practice of the banking system. The article examines the specifics, the theoretical basis of the impact of small business lending on economic growth in the country. The relationship of scientists and experts to this issue is studied and an author's approach is given. Based on the research, scientific conclusions have been made.*

Key words: *Small business, lending, supply, interest, income, long-term loans entrepreneurs economic development, Ordinary Least Squares.*

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Introduction

Today, special attention is paid to the development of small businesses in our country. At the same time, commercial banks should offer entrepreneurs a "package of preferential services" depending on the results of their business [3] indicates the urgency of expanding the services provided by commercial banks to small businesses. Over the past 4 years, many small businesses have expanded as a result of the opportunities created for business development.

Financial support of business entities on the basis of loans has been identified as one of the main directions of the ongoing reforms in the country.

In our country, all barriers to lending to small businesses are being removed. In particular, 69th place in terms of doing business, 67th out of 190 countries according to the World Bank's Doing Business [4] is also an indication of how far our work in this area is progressing.

Figure 1. Phases of doing business [4]

Loans are a necessary requirement for business entities in Phase 3. Commercial banks of the country are taking measures to fully meet this demand in a timely manner. In addition, the country is working to widely apply the experience of "social contract". An unemployed person often suffers from lack of funds to learn a profession. Today, our state provides financial and social assistance to young people and women in this initial period. The sources for performing these tasks are also clearly identified. 100 million from the Fund for Reconstruction and Development. Funds in the amount of USD will be transferred [2].

When the rich experience of advanced business lending by commercial banks of developed countries was studied, it became clear that financial provision, which is the basis for business financing, is not the only factor for business, but the most vital as well as a key element for starting and continuing any business. What is remarkable is that it does not matter where or how the sources of money are formed, it has a legal basis and is cheap and quick to find.

According to UNESCAP, small and medium-sized businesses account for 99 percent of all firms in East and Southeast Asia, as well as in Japan [5]. Small and medium-sized businesses are the largest source of employment in the region, accounting for three-quarters of the region's employment.

Small and medium-sized businesses account for 90 percent of all firms in the world [6]. A study by the International Monetary Fund and McKinsey & Company, an international consulting firm, found that the total number of formal and informal micro, small and medium enterprises worldwide is 420-510 million, of which 365-445 million are located in developed countries [7].

The issue of lending to businesses has been scientifically studied by foreign and local economists and relevant conclusions have been drawn.

The founder of the Grameen Bank of Bangladesh, Nobel Laureate, well-known economist M. Yunus has made a unique revolutionary change in the field of business lending. In particular, at his initiative and proposal, a form of group lending to small businesses, a type of unsecured lending was introduced in the practice of Grameen Bank. According to M. Yunus, the main focus in lending to small businesses that are just starting out should be the social effect of lending. As the financial capacity of business entities expands, they will lead to an increase in demand for loans at market rates [8].

Today, we can divide the problems of businesses in obtaining credit into two groups, namely, internal and external problems.

External problems in obtaining credit:

a) The high interest rates on loans provided by commercial banks to businesses is explained by the fact that as a result, lending to businesses has a high level of risk; (Currently, the average interest rate on loans to legal entities by commercial banks as of June 1, 2020 is 23,7% [9].)

b) short repayment period;

c) the complexity of the loan process.

Internal problems that make it difficult to get a loan:

a) limited lending to businesses;

b) insufficient development of the competitive market in lending to business entities;

c) the small scale of its activities, the difficulty of assessing its status;

d) quality of business plan preparation for obtaining a loan, etc.

Lending processes in commercial banks currently operating in the country are carried out in accordance with the Regulation of the Board of the Central Bank of the Republic of Uzbekistan dated November 23, 2013 No 22/9 "On the procedure for lending to small businesses in the national currency." The objects of lending in commercial banks are individual entrepreneurs, micro-firms, small businesses, farmers and family businesses. Loans are issued by commercial banks in accordance with the loan agreement between the bank and the borrower.

Each commercial bank determines the grace period for lending to small business and private entrepreneurship on the basis of its credit policy. Also, loans may not be issued for the implementation of activities prohibited by law and for the repayment of previously received loans or other debts specified in the "Credit Policy" of a commercial bank.

Table 2. Loans for financial support of small business [10]

Years	Total loans allocated		Of which:					
			To legal entities		To individual entrepreneurs		To conduct business activities for the population	
	number of loans	Amount (billion soums)	number of loans	Amount (billion soums)	number of loans	Amount (billion soums)	number of loans	Amount (billion soums)
01.07.2017	236740	10181,1	76304	7079,1	19845	920	140591	2182,4
01.07.2018	191134	14353,8	82215	13773,4	32200	1629	76719	921,3
01.07.2019	284902	24397,5	32459	19635,9	17390	1273,2	235053	3488,2
01.07.2020	107313	19410,8	36787	17346,1	13463	949,7	52563	1114,8
Total:	**820089**	**68343,2**	**227765**	**57834,5**	**82898**	**4771,9**	**504926**	**7706,7**

The analysis of the data in the table above shows that over the past four years, a total of 820089 small businesses received 68343.2 billion soums. soums were allocated for loans. 7706.7 billion soums were allocated for entrepreneurship. UZS loans account for 11.3% of the total loans, which makes it necessary to further develop this indicator. In addition, 57834.5 billion soums were allocated to small businesses. UZS, which is 84.6% of the total allocated loans.

Commercial banks and credit unions have traditionally used lending methods to lend to small and medium-sized businesses around the world. A study by the World Bank in 91 commercial banks in 45 countries found that the small and medium business segment is a profitable customer for the bank, but macroeconomic instability in developing countries is a major problem compared to small and medium businesses in developed countries. funding them will stand out.

Materials and Methods

The analytical part of this article is focused on the empirical analysis of trends in key indicators of macroeconomic, corporate and firm-level indicators in 2006-2017. Considering the mathematical and economic attributes and properties of the selected indicators, econometric modelling is decided to built on OLS method with comprehensive auxiliary tests. In selecting the indicators, influencing on the SME development in domestic economy, all impact channels are included. The econometric model is specified as follows:

$$SSME_t = \alpha_0 + \beta_1 LSME_t + \beta_2 NSME_t + \beta_3 BENV_t + \beta_4 MEST_t + \varepsilon_t \quad (1)$$

SSME – share of SMEs in GDP in t period. Importance of SMEs in the economy is estimated through their share in the gross domestic output. Therefore, share of SMEs in GDP formation is selected as the key measure in econometric model.

LSME – lending to SMEs in t period. As mentioned in problem statement, SME finance holds the central position in establishing SMEs and moving them forward due to the usually faced need in funding. Bank lending makes up the largest contribution in SME support schemes, as most enterprises lean on bank funding even in pre-establishment, establishment and recovery periods. Bank offers and lending volumes to SMEs directly influence on the overall SME development trends in economy.

NSME – number of SMEs. Change in the number of operating SMEs in economy illustrates their expansion and its growth shows supportive environment, decrease is the sign of negative condition for SME expansion.

BENV – business environment in domestic economy. General business environment in a particular economy depicts the entire picture of private sector, which presents an operational space for large, medium and small businesses. Share of private sector enterprises indicates the wellbeing in business environment. Dominance of state owned/ governmental enterprises tightens the smooth functioning of

MEST – macroeconomic stability. Macroeconomic stability lays the solid foundation for overall socio-economic development in the economy. It ensures effective functioning of all economic tools, including income, labor, resources, markets, corporate relations etc. Macroeconomic stability is measured with economic growth indicators, namely, GDP growth. Following generally accepted theory, in this econometric model, macroeconomic stability is measured through dynamics of GDP volume in national currency.

Results

Deriving from the essence and attributes of the

data, the econometric model is estimated in ordinary least squares (OLS) method. In initial stage of the analysis, we decided to obtain basic characteristics of collected data sets, which enables us to make decision over model selection.

Table 1. Descriptive statistics

	SSME	LSME	NSME	BENV	MEST
Mean	52.15000	6685.187	183.7304	370.8177	104508.7
Median	53.65000	4693.500	188.5800	440.6343	87170.20
Maximum	56.90000	19600.00	229.6660	491.7986	249136.4
Minimum	42.10000	546.8380	100.8000	226.7064	21124.90
Std. Dev.	4.706765	6310.014	32.99208	115.2752	73457.21
Skewness	-0.939127	0.873934	-1.139547	-0.299592	0.631016
Kurtosis	2.734221	2.522623	4.502227	1.178102	2.242019
Jarque-Bera	1.799240	1.641465	3.725480	1.839166	1.083631
Probability	0.406724	0.440109	0.155247	0.398685	0.581691
Sum	625.8000	80222.24	2204.765	4449.812	1254104.
Sum Sq. Dev.	243.6900	4.38E+08	11973.25	146172.1	5.94E+10

The descriptive statistics illustrates that the data points are close to the mean in share of SMEs and number of SMEs, while those in lending to SMEs and macroeconomic stability is are spread out over a wider range of values. Share of SMEs, number of SMEs and business environments data are negatively skewed, since lending to SMEs and macroeconomic stability data sets are positively skewed: asymmetric data does not exist. Selected data sets have positive (leptokurtic) kurtosis, which indicates that data is heavily distributed.

After obtaining a positive descriptive statistics coefficients, the econometric model (1) is run in OLS method (Table 2).

Table 2. OLS test results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	32.53329	7.154166	4.547461	0.0026
LSME	0.003242	0.001048	1.093048	0.0175
NSME	0.041521	0.036039	1.152119	0.0871
BENV	0.002847	0.010294	0.276544	0.0901
MEST	0.000312	9.78E-05	3.190052	0.0153
R-squared	0.843149	Mean dependent var		52.15000
Adjusted R-squared	0.753519	S.D. dependent var		4.706765
S.E. of regression	2.336759	Akaike info criterion		4.829744
Sum squared resid	38.22310	Schwarz criterion		5.031788
Log likelihood	-23.97846	Hannan-Quinn criter.		4.754940
F-statistic	9.407061	Durbin-Watson stat		2.172400
Prob(F-statistic)	0.006038			

OLS test results showed that all selected factors have positive effect in the dynamics of the share of SMEs in GDP. Moreover, all four variables are significant, as probability is less than 10 per cent. Number of SMEs (0.041521) adds the largest contribution to the strengthening position of SME's to economic growth in Uzbekistan. Bank lending to SMEs is the second major driving force, which stimulates the SME development in the domestic economy (0.003242). Business environment (0.002847) in Uzbekistan also supports SMEs' solid role in economic development. Among all four factors, macroeconomic stability (0.000312) influenced comparatively less on SMEs' share in GDP.

In consistent with OLS test results, we specify the mathematical expression of our econometric model as follows:

$$SSME_t = 32.53329 + 0.003242\ LSME_t + 0.041521\ NSME_t + 0.002847\ BENV_t + + 0.000312\ MEST_t + \varepsilon_t \quad (2)$$

Discussion

In the course of scientific research, the following controversial cases were identified. Creating more incentives and incentives for entrepreneurs with good credit histories, which effectively operate through the stratification of benefits provided to commercial entities by commercial banks, will create the basis for the expansion of enterprises;

Given the high level of enthusiasm and aspiration of the population of the Republic to start their own business, it is necessary to reduce interest rates on loans;

The profitability of enterprises in various sectors of the economy does not correspond to the interest rates on loans issued by commercial banks in our country. The average interest rate on loans issued by banks is much higher than the profitability of sectors of the economy, especially in agriculture and industry.

Conclusion

As discussed above, SME's play critical role in ensuring balanced and progressive socio-economic development in both developing and advanced economies. Therefore, SME support schemes, especially ensuring financial stimulation has been on the top of economic policymaking agenda of nearly all countries in the world. Nowadays SMEs in advanced economies enjoy effectively and prudently introduced lending schemes, where developing economies fail in delivering the needed financial support owing to systemic and structural problems. Therefore, developing economies are actively introducing new tools and services from the advanced experience of developed counterparts. In accordance with research findings and international best practices, following recommendations are drown and proposed in order to improve SME lending schemes in developing countries, which can be applied to Uzbekistan:

1. In many developing economies interest rates of loans for SMEs are not sufficiently flexible. Even they offer lending tools in preferential interest rates, they are solidly fixed at particular scale of interest rates, which changes depending on loan amount and maturity period. Introducing loyalty, credit history and portfolio bonuses.
2. Credit institutions mainly focus on timely and full payback of the issued loan to SME's. Considering the importance of SME's in the employment and value creation in the economy, it is recommended to consider the social contribution (investment, employment, output dynamics, gained through the bank loan) in presenting lending tools and to apply bank's own preferred interest rate or other form of stimulation for SME in future.
3. As a result of the analysis, in order for banks to succeed, they must first and foremost consider their most valuable "asset" as their customers, and qualitatively change the system of customer relations to form a new ideological way of working with customers. it became clear that a new technology-based way of working had to be established.
4. Small business and private entrepreneurship in Uzbekistan have a high share in GDP, but have a share of 7.9% in the loan portfolio compared to developing countries, lagging behind in financing small business and private entrepreneurship.
5. In the best foreign experience in lending to small businesses, it became clear that special surveys of small businesses and the application of the organization of future lending in Uzbekistan on the basis of the identified shortcomings are quite effective.
6. With extensive use of international experience, commercial banks should review and adapt the lending systems of business entities.

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SOCIO-ECONOMIC CONTENT OF THE CONCEPT OF «FAMILY ECONOMY», ITS DEVELOPMENT AND IMPROVEMENT

Abstract: *The article deals with such issues as the socio-economic content of the "family economy", contextual directions of its development and improvement of well-being.*

Key words: *family economy, household, family, family business.*

Language: *Russian*

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СОЦИАЛЬНО-ЭКОНОМИЧЕСКОЕ СОДЕРЖАНИЕ ПОНЯТИЯ «СЕМЕЙНОЕ ХОЗЯЙСТВО», ЕГО РАЗВИТИЕ И СОВЕРШЕНСТВОВАНИЕ

Аннотация: *В статье рассматриваются такие вопросы, как социально-экономическое содержание "семейной экономики", контекстуальные направления ее развития и повышения благосостояния.*

Ключевые слова: *семейной экономики, домашнее хозяйство, семья, семейный бизнес.*

Введение

На ранних этапах развития человечества сформировалось понятие семьи. Эта концепция как первый этап сообщества реализуется и соблюдается на всех этапах развития общества. В этом отношении семья, ее различные проблемы в какой-то степени изучаются и изучаются.

В какой-то степени были созданы законы по таким аспектам семьи, как правовые, философские, духовные, были изданы книги и брошюры. Но с экономической точки зрения мы считаем, что необходимо признать, что проблемы ее решения слабо изучены.

Следует признать, что с образованием семьи вопрос экономического обеспечения в ней рассматривался наравне с другими ее аспектами, а в некоторых случаях и превосходил все. В этой связи, когда речь заходит об экономическом обеспечении семьи, соответствующие функции распределяются между каждым из ее членов. На главу семьи Бунда возложена задача века.

В нашей стране семья считалась священной, сохранялась традиция сохранения своего прошлого и традиций. Вопрос семейных династий, передачи профессии из поколения в поколение, вопросы сохранения семейной генеалогии с целью сохранения прошлого семьи рассматриваются как ценность во многих наших семьях. Они, наряду с возложением определенного уровня социально-духовной ответственности на главу семьи, несут и экономическую задачу.

Но экономика семьи, все ее аспекты, были плохо изучены как раньше, так и сейчас. Например, даже классическая экономическая литература, такая как "Принципы экономики" Маршалла, "Принципы политической экономии" Милля, "Богатство наций" Смита, не придавала достаточного значения семейной экономике (Видяпина и Джуравойой, 1995).

Принимая это во внимание, мы считаем, что решение проблем раскрытия социально-экономической сущности семьи и ее социально-экономического содержания, экономических отношений этой семьи, а следовательно, социально-экономической сущности семьи и

связанной с ней экономики, изучение этой проблемы теоретически и практически становится приоритетной задачей перед экономистом.

1. Обзор литературы.

После обретения Узбекистаном независимости в его экономической структуре появилось несколько новых понятий, в том числе семья, домашнее хозяйство, и они стали признаваться предметом микроэкономики. Экономическая литература включала такие понятия, как "Семья", "Семейное хозяйство", "домашнее хозяйство", "семейное предпринимательство". Но их содержание, в отличие друг от друга, не полностью освещено экономически, с учетом особенностей каждого. В разной литературе существуют разные мнения по этим понятиям.

Понятие семьи описывается в Толковом словаре узбекского языка (1981) как"совокупность людей, живущих вместе, состоящая из пары, их детей и их ближайших родственников". В общем, можно добавить к этому определению, так как состав семьи в нем состоит в основном из ее собственного выражения. Но здесь семья рассматривалась только как группа людей, живущих вместе. Но в этом определении не отражена экономическая и социальная функция семьи.

Улмасов (1998) дает определение, что:" кровь семейных людей основана на совместном удовлетворении потребностей родства, собственности и интересов, а также спроса, то есть это микросоциальная структура, цель которой одна". Как он говорит в интерпретации личности, социальная жизнь начинается с семьи.

"Семья-это небольшая группа людей, сформированная на основе относительных семейных отношений друг с другом для осуществления деятельности, направленной на удовлетворение социальных, экономических и духовных потребностей личности, семьи и общества в целом" (Баликоев, 2008).

Это определение соответствует текущему периоду, в котором формируются рыночные отношения, поскольку семья становится не только потребителем, как раньше, но и хозяйствующим субъектом. В этом отношении это определение рассматривается как подгруппа объединенного общества, а не как совокупность людей, живущих вместе, обычных для семьи, но с целью социального, экономического и духовного удовлетворения.

Однако даже в этом определении понятие семейной экономики как предмета микроэкономики недостаточно описано. В большинстве случаев используются понятия" семейное хозяйство "и" домашнее хозяйство". Но они используются во многих публикациях как синонимы друг для друга. Однако в последнее время также делаются некоторые конкретные предложения на этот счет. Это примеры взглядов Каримовой (1997) на приговор. Этот ученый сказал:" Под домашним хозяйством понимается группа людей, живущих в квартире, которые коллективно потребляют определенные товары и услуги, в основном бытовые услуги для проживания и питания, которые полностью или частично собирают их доходы и имущество", - сказал он.

Каримова (1997) заявила, что следует отличать от домашнего хозяйства, и заявила в семейной ферме, что "группа людей, живущих в одном домашнем хозяйстве", "будет состоять только из членов семьи".

Если случается так, что организованные люди в домашнем хозяйстве не живут вместе, но даже тогда признание того, что "люди, которые живут в квартире", является плюсом.

На наш взгляд, при описании субъекту любой хозяйственной деятельности, особенно семейной фермы, необходимо, прежде всего, исходить из ее экономического назначения. Любой хозяйствующий субъект должен иметь собственное имущество, хозяйственную деятельность и полученные от нее доходы, а также права на владение ими. Что касается определения семейной фермы, то целесообразнее всего исходить в первую очередь из определения семьи. Однако, если это считается семейной фермой, то бунда также должна иметь определенный уровень семейной собственности, аналогичную экономическую деятельность и семейный доход от нее. Исходя из того же теоретического вывода, можно дать семейной ферме следующее определение.

Под семейной экономикой понимается группа людей, живущих вместе на основе брака, деторождения и материнства друг с другом с целью удовлетворения социальных, экономических и духовных потребностей членов семьи и всего общества, а также для осуществления таких видов деятельности, как производство, выполнение работ и обслуживание, которые имеют собственную собственность для получения определенного дохода.

В семейной ферме имущество находится в прямой собственности семьи, средства производства в ней находятся в прямой собственности семьи, в которой как работники, так и те, кто пользуется результатом Труда, должны быть людьми, принадлежащими к одной семье.

Понятие "домашнее хозяйство" несколько отличается от понятия" семейное хозяйство". На этот счет существует много мнений. Видяпин и Журавлева (1995) отмечают, что "современные экономические идеи рассматривают семью или, в

более широком смысле, домашнее хозяйство не только как основного потребителя, но и как производителя". Эти взгляды ученых показывают, с одной стороны, стала производителем только из предмета потребления, с другой стороны, они смотрят на домашнее хозяйство с семьей как на своего рода синоним. Трудно согласиться с этим мнением. Потому что домашнее хозяйство с семьей отличается друг от друга не только с точки зрения наименования, но и с точки зрения экономического содержания.

Булатов (2005) заявил: "Домашнее хозяйство-это экономический агент, который занимается обслуживанием домашнего хозяйства, т. е. потреблением". Однако в главе 2 этой книги они рассматривают это как "объект микроэкономики-домашнее хозяйство, фирмы, отрасли, рынок товаров и услуг, рынок ресурсов". Кроме того, видно, что авторы этого учебника выступают против зависимости домашнего хозяйства от экономики и его роли в экономике. Если бы предметом потребления было только домашнее хозяйство, оно не было бы предметом микроэкономики. Если, однако, это рассматривалось им как предмет микроэкономики, то домашнее хозяйство не должно было рассматриваться только как потребитель.

Попов (2006) как субъект микроэкономики для домашнего хозяйства был очень правым сторонним. По его мнению, "домоводство-это начальная форма предпринимательской деятельности, направленная на попытку минимизировать затраты для достижения определенных целей".

Очень разумно, чтобы домашнее хозяйство рассматривалось как форма предпринимательства. Но даже в этом определении есть некоторые недостатки. В нем не уточняется, кто и с какой целью будет участвовать в домашнем хозяйстве.

Улмасов (1998) приравнивает семью непосредственно к домашнему хозяйству. Он сказал, что человек сказал: "С экономической точки зрения семья-это домашнее хозяйство и является основной отраслью микроэкономической системы. Другая его часть-это фирма, предприятие и экономический сектор". На наш взгляд, на семью нельзя смотреть так же, как на домашнее хозяйство. Если мы будем исходить из определений семьи и домашнего хозяйства, то увидим, что это отдельные социально-экономические понятия.

Подобные идеи можно найти в некоторых классических произведениях литературы. В целом концепция домашнего хозяйства, на наш взгляд, должна отвечать некоторым требованиям. Например, в домашнем хозяйстве собственность принадлежит семье, средства производства принадлежат семье. Но в НЕМ работников привлекают не только члены семьи, но и другие нанятые люди. Пользование результатом Труда также, соответственно, будет состоять не только из членов семьи, но и из других людей, участвовавших в труде. Также стоит помнить, что в условиях рыночных отношений, независимо от того, кем они являются, существует дефицит рабочей силы. Исходя из этого теоретического вывода, можно дать домашнему хозяйству следующее определение.

Под экономикой домашнего хозяйства понимается группа организованных людей (включая наемных работников) вокруг одного и того же домашнего хозяйства и членов семьи, занимающихся такими видами деятельности, как производство, выполнение работ и предоставление услуг, с целью удовлетворения социальных, экономических и духовных потребностей всего общества и получения определенного уровня дохода (прибыли) на основе семейной собственности.

На самом деле в домохозяйстве могут быть и другие вербовщики, помимо членов семьи, которые являются частью домохозяйства.

В последнее время среди понятий семейной экономики, домоводства также было введено понятие Экономики домашнего хозяйства. Ахмаджонов (2006) рекомендует ввести концепцию экономики домашнего хозяйства, поскольку она связана с тем фактом, что многие семьи могут жить в домашнем хозяйстве.

В частности, (2006) Ахмаджонов описывает домашнее хозяйство следующим образом:

"...жилищные условия квартиры являются общими для небольшой группы людей, которые вместе потребляют ряд товаров и услуг, объединяя собственные денежные и материальные ресурсы. В этом определении природа квартиры не раскрывается полностью, как предмета микроэкономики. Потому что он рассматривает квартиру как "небольшую группу людей, которые объединяют свои собственные деньги и материальные ресурсы". Понятно, что в квартире нет никаких людей, но "несколько семей, проживающих в одной квартире, живут вместе". Они также будут состоять из семей или близких друг другу людей, которые используют свою собственность для получения определенного уровня дохода (прибыли). Мы обобщили эти теоретические концепции и пришли к выводу, что стоит дать домашнему хозяйству следующее определение. Под домашним хозяйством понимаются те люди, которые совместно проживают в квартире с целью осуществления такой деятельности, как производство, выполнение работ и предоставление услуг, при которой одна или несколько семей, совместно проживающих в квартире, имеют собственное

имущество для удовлетворения социальных, экономических и духовных потребностей себя и всего общества, а также для получения дохода.

В общем, независимо от того, называется ли это домашним хозяйством, семейной фермой или квартирной фермой, все они являются предметами, связанными с семьей. Этот слог возник во время первоначального становления экономики и снова развивается.

В настоящее время семейное хозяйство представлено как социальный и экономический субъект. В связи с этим в этом контексте следует провести его теоретический и практический анализ. Категория, выражающая социально-экономическое содержание семейной экономики, – это ее благополучие. В нашей стране проводится множество концертных мероприятий, направленных на повышение благосостояния семьи. Одним из наиболее важных является то, что благодаря их участию в свободной предпринимательской деятельности были созданы соответствующие условия для повышения благосостояния.

Одним из многих способов повышения благосостояния семейной фермы является предпринимательство, которое организуется на семейной ферме. В частности, Пардаев и Курбанов (1999) дали определение семейному предпринимательству, согласно которому "предпринимательство, в котором участвуют члены семьи, основанные на семейной собственности, называется семейным предпринимательством". Это определение объясняет значение семейного предпринимательства. Но целью членов семьи из этого бизнеса было найти в нем свое выражение. Принимая это во внимание, прочитав и развив мнения вышеперечисленных авторов, мы пришли к выводу, что ему стоит дать следующее определение семейному бизнесу в результате того, что основной целью семейного бизнеса является получение прибыли.

Считается, что семейный бизнес-это свободно выбранная деятельность, основанная на семейной собственности, в которой участвуют члены семьи и в определенной степени предназначена для того, чтобы приносить доход (выгоду) и социальные выгоды семье.

В этом определении четко указано, что для того, чтобы в семейной экономике было предпринимательство, оно должно быть свободно выбрано, исходя из его собственного усмотрения и возможностей, имущества, деятельности, цели и деятельности, связанной с ним. Таким образом, можно расширить теоретические выводы об экономике семейного хозяйства и совершенствовании предпринимательства в нем. Теоретические доказательства, представленные в этой статье, станут основой для следующего вывода.

Во-первых, семейная экономика стала предметом микроэкономики в условиях свободной экономики, основанной на рыночных отношениях.

Во-вторых, для целей семейного хозяйства право на владение имуществом, средствами производства, рабочей силой и доходом (в пользу которого), полученным в результате деятельности, возникло как хозяйствующий субъект. Возьмем, к примеру, учителя-предпринимателя или врача-предпринимателя. Они постоянно развивают и совершенствуют свою профессию, приобретая навыки и опыт. Это люди, которые думают, что больше трогать людей, чем повышать их профессиональные навыки. Такая деятельность будет по-прежнему финансово и морально стимулироваться членами общества.

В-третьих, это было основано на том факте, что концепция домоводства более обширна, чем концепции семейной экономики и экономики домашнего хозяйства. Было показано, что будет задействован наемный труд, и благодаря этому прибыль также может быть распределена между наемным работником в зависимости от его труда.

Из четырех, семейное предпринимательство также является специфическим предпринимательством и зависит от рабочей силы семейной собственности и членов семьи.

Наконец, важными направлениями повышения благосостояния семьи в настоящее время являются не только повышение заработной платы, но и развитие предпринимательства, использование собственности и повышение эффективности хозяйственной деятельности членов семьи, которые все больше и больше похожи на увеличение их доходов (прибыли).

4. Анализ и обсуждение результатов

Одним из важных аспектов повышения благосостояния семейной экономики является выражение из решения ее теоретических вопросов. Но в экономической литературе до сих пор не разработано определение понятия семейного благополучия, которое полностью отвечало бы современным требованиям. В связи с этим эта проблема также является одной из проблем, ожидающих своего решения.

Исследования показали, что принятие решений на семейном предприятии решает множество социально-экономических проблем в нашей стране. Прежде всего, это восстановит класс малого бизнеса и частных предпринимателей, которые являются основной движущей силой рыночных отношений, создаст возможность обогатить рынок нашей страны товарами народного потребления и различными услугами, а также решит проблему, которая в

настоящее время важна, а именно создание новых рабочих мест, проблему уклонения от уплаты налогов, ликвидацию безработицы. Однако семейный бизнес не продолжает развиваться самостоятельно. Необходимо развивать его на современном уровне, доводить до состояния производства конкурентоспособной продукции (работ, услуг) на высоком уровне. Для этого необходимо изучить теоретические и практические вопросы данной проблемы и разработать соответствующие рекомендации по их совершенствованию.

В настоящее время в Узбекистане развивается предпринимательство семейного хозяйства. В целях обеспечения и ускорения их воспроизводства поручено создать объединения предпринимателей соответствующего семейного хозяйства. С помощью таких объединений можно решать важнейшие социально-экономические проблемы, связанные с развитием и благополучием семейного хозяйства. В будущем также необходимо решить проблемы, связанные с организацией объединений предпринимателей семейного бизнеса в нашей стране. Разработка концепции развития функционирования таких неправительственных организаций также является одним из наиболее актуальных вопросов на сегодняшний день.

Следует отметить, что углубление проводимых в Узбекистане экономических реформ, его либерализация меняют содержание и сущность доходов семейного хозяйства, улучшают их. Ведь в Узбекистане существует социальная политика, проводимая в интересах всех членов общества, всех слоев населения. Это, в свою очередь, обусловило необходимость развития эффективного потенциала для поддержки слоев населения с низкими доходами. Это связано с углубленным изучением доходов в семейной экономике, их структурной структуры с учетом этого, поскольку идентификация верхних и нижних слоев населения осуществляется именно путем расчета их доходов. Однако до сих пор не было проведено крупных всесторонних исследований по этому вопросу, пользующихся спросом. Потому что имущество и доходы семейного хозяйства, во-первых, как уже отмечалось, являются частью национального богатства нашего государства, а во-вторых, являются объектом налогообложения. Кроме того, на этих показателях также основаны критерии измерения благосостояния семьи, уровня ее низкого дохода и благосостояния.

Необходимо теоретически обосновать необходимость изучения стратификации их доходов и расходов с учетом того, что на благосостояние семейной экономики влияют структурные изменения в ее доходах и расходах. Был сделан вывод, что эту проблему следует изучать в следующем направлении: несоответствие между жителями городов и районов городского типа и сельскими жителями; несоответствие между доходами семей, занятых в разных областях; разница в количестве членов семьи в семейном хозяйстве по сравнению с разница в количестве членов семьи на семейной ферме. Решение этих проблем также будет подробно рассмотрено в работе.

Либерализация экономики, формирование рыночных отношений привели к радикальному изменению доходного содержания семейного хозяйства и связанных с ним обстоятельств. Эти изменения проявляются в следующем: в нашу экономическую и социальную жизнь вошла новая экономическая категория-категория стоимости рабочей силы; появилось место, где рабочая сила продается на основе спроса и предложения - рынок труда; абсолютная и относительная безработица возникла в результате изменений спроса и предложения на рабочую силу.; постепенно члены семьи, само население, переходят к принципу занятости на основе развития предпринимательства; в структуре доходов семьи появились новые источники - доходы от использования имущества и предпринимательской деятельности; если раньше доходы от использования имущества состояли только из арендной платы, то теперь вошли такие виды доходов, как дивиденды, проценты, инвестиционные доходы.

Эти обстоятельства, наряду с обеспечением определенного уровня стабильности общества, также порождают некоторые проблемы. Перед лицом этих проблем стоит проблема расслоения доходов домохозяйств, появления малообеспеченных семей в результате безработицы и так далее. Основным способом решения этих проблем, на наш взгляд, является, во-первых, осознание необходимости перехода к принципу повышения социальной активности населения, самозанятости и другим необходимым благам, в то время как второй является показателем внедрения мексиканизм материальной заинтересованности в любой деятельности людей, разработки новых способов стимулирования. Однако эти меры также требуют решения в масштабах нашей страны, на законодательном уровне правительства и Олий Мажлиса.

Результат исследования показал, что одним из основных способов увеличения семейного имущества и доходов является доход, полученный от использования имущества. Учитывая это, необходимо создать методы определения текущей и чистой стоимости инвестиций, а также методы использования коэффициентов дисконтирования, способы умножения своего дохода и имущества путем инвестирования в имеющееся избыточное

имущество на семейной ферме, исходя из их происхождения и используя общую методологию этих методов, разработать способы его внедрения. Потому что этот вопрос все еще был проблематичным. В трогательных главах произведения полностью раскрывается его содержание.

В настоящее время также необходимо разработать пути повышения эффективности использования инвестиционных средств семейной фермы. К ним: можно увеличить продолжительность проекта; увеличить (уменьшить) ставку дивидендов по проекту; можно включить увеличение (поток) денежных поступлений и т.д. Но эти вопросы тоже недостаточно изучены в соответствии с семейным происхождением.

В период перехода к рыночным отношениям инфляционные процессы все еще сохраняются. С учетом этого следует разработать методологические аспекты оценки и анализа имущества и доходов семейного хозяйства в условиях инфляции. Используя номинальный и реальный уровень дохода семейной фермы, определяется общая норма дохода, которую она получает от своих инвестиций. Это позволило определить стоимость инвестиций в семейную ферму в случае учета инфляции по истечении одного года и определить влияние этого на благосостояние семейной фермы.

Формирование рыночных отношений требует от предпринимателя семейного бизнеса исключительных знаний, осмотрительности не только в плане предпринимательства, но и в ведении экономических дел. Экономические знания предпринимателя, чтобы иметь широкий охват, принесут больший доход доходу семейной фермы, самое главное, чем больше собственности .тиради Что еще более важно, размер собственности увеличивается за счет использования собственности. И это станет основой для обогащения семейного хозяйства, всего населения, государства, а также укрепления его экономической мощи.

Таким образом, благосостояние семейной фермы различными способами и методами будет возрастать. Об этом свидетельствует появление еще одной экономической опоры в реализации благородного дела Узбекистана как строительства уникального и подходящего пути развития - свободной и процветающей, свободной и благополучной жизни.

В связи с этим следует также высказать некоторые мысли о семейном бизнесе. Потому что понятия семейного благополучия и бизнеса в семейной экономике часто рассматриваются как одни и те же понятия. В этой связи мы хотим поделиться своими взглядами, не делая акцента на теоретическом анализе мнений в экономической литературе. Семейному бизнесу необходимо оценивать его как деятельность, приносящую прибыль (доход), исходя из концепции бизнеса. Если она основана на этой теории, то стоит дать ей следующее определение. Семейный бизнес означает все виды деятельности, связанные с производством, обслуживанием и выполнением работ, которые приносят доход (прибыль) семье при владении определенным имуществом. Не имеет значения, на ком основано это имущество, оно рассматривается только с точки зрения принесения дохода (прибыли) семье.

Важность этого процесса не ограничивается только рассматриваемыми вопросами. Ведение семьи или домашнего хозяйства, занятие семейным бизнесом не только обеспечивает благополучие семьи, но и обеспечивает занятость жителям, чтобы открывать новые рабочие места и обогащать государство за счет уклонения от уплаты налогов с них, в нашем обществе достигается полнота. Продукция, производимая на семейной ферме, не только удовлетворяет их собственные потребности, но и дополняет рынок страны продукцией (работами, услугами). Самое главное, что его духовное значение также несравнимо, потому что оно лишает общественность духа бессмертия, поглощает и обеспечивает инициативу и устремление. Это в конечном счете повышает активность общества, масс, ускоряет процесс формирования демократических принципов рыночных отношений.

Среднее число членов семьи в нашей стране составляет 5,1 человека. При этом, по нашим подсчетам, количество семей в нашей республике составляет более 6,7 миллиона. Если из каждой семьи выйдет хотя бы один предприниматель, в нашу страну будет инвестировано еще 6,7 миллиона долларов. будут созданы дополнительные рабочие места. Это один из важных факторов, обеспечивающих насыщенность потребительского рынка нашей страны. Если каждый предприниматель приносит своей семье в среднем от 50000000,0 сумов в год, то на благосостояние семьи в республике приходится 338 миллионов рублей. сумма приносит дополнительные выгоды. В среднем 30 процентов из них пойдут в государственный (местный) бюджет в качестве налогов и других сборов, в то время как 101 миллион снова поступит в бюджет. эта сумма принесет дополнительный доход.

Стоит отметить, что конечной целью проводимых в нашей стране реформ является показатель создания достойных условий жизни для нашего народа, каждой семьи. Это, конечно, сложная и ответственная задача. Для достижения такой цели недостаточно просто осуществлять практическую деятельность. Углубленное

изучение этой области также требует разработки научно обоснованных рекомендаций по обеспечению благополучия каждой семьи.

Таким образом, мы видим, что превращение семейной экономики в субъект микроэкономики является не только экономическим, но и важным социальным и духовным, оно также может ускорить формирование рыночных отношений в стране, либерализацию экономики и модернизацию общества.

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THE PRINCIPLES OF COMMONALITY AND SPECIFICITY IN THE PHILOSOPHICAL TEACHINGS OF BAHA UD-DIN WALAD AND JALAL AD-DIN RUMI

Abstract: *The hereby article aims at discussing the aspects of commonality and specificity in the philosophical ideas and teachings of the greatest Sufi mystics Baha ud-Din Walad and Jalal ad-Din Rumi and presenting the thorough analysis of the similarities and differences of their creative works. It is common knowledge that the philosophical teachings of the outstanding Islamic scholars such as Baha ud-Din Walad and Jalal ad-Din Rumi, their altruistic ideas that challenge to human perfection and maturity play an important role in educating the young generation as well as ensuring the consecutive development of spiritual and educational reforms in our society. By philosophical analysis of the scientific heritage and anthropological views of these mystics we also begin to become acquainted with their ideas on ontological, epistemological and ethical issues. Also, the article presents the comparative and analogic study of the vital issues such as the problem of the human and universe, social propositions, the spiritual maturity of man etc. discussed in the scholars' philosophical teachings.*

Key words: *mysticism, waḥdat al-wujūd, the unity of existence, Sufism, soul, morality, material world, spiritual world, anthropology, substance, pantheism.*

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Introduction

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The latest reforms carried out in our country at present day are being at thorough study and disseminating the scientific and theoretical heritage of our outstanding and well-known ancestors to educate our young generation in the spirit of our noble traditions. "We must make a point of embraining the invaluable heritage of our great scholars, writers, saints etc. as well as the bravery of our unbeatable commanders and leaders in the minds of youth of the country to strengthen their sense of national pride" [12.-29.12.2018]. In this regard, it is important to scientifically and theoretically analyze the essence of Jalal ad-Din Rumi's propositions on humanism, altruism etc. including the worldwide recognized ideas such as common sense, high spirituality, mystical thinking and upbringing of a perfect man related to the child-rearing practices.

In the history of mysticism, a number of examples can be adduced for the processes by which one person directly and indirectly influences the worldview, spiritual maturity and perfection of another person, and as a result, such coincidences lead to the merge of ideological connections between their teachings. Baha ud-Din Walad, a great scholar of his time known as Sultan ul-Ulama (the name of title), was one of those well-respected people who internally and externally influenced the teachings of his contemporaries and later Sufis with his philosophical views, religious and educational wisdom and encouraged them to achieve the highest peaks of spiritual maturity.

A number of works have been carried out around the world, especially in the United States, to study the great interest in the works of Baha ud-Din Walad and Jalal ad-Din Rumi and their scientific heritage. Particularly, R.Nicholson and A.Arberri were the first who studied and translated the works of Sufi scholars into English. Moreover, the scientific and philosophical heritage of both thinkers had been analyzed in the research of such well-known world scientists as Sh.Jan, U.Chittik, J.Baldok and K.Ernst [11, 108].

The Russian scholars V.Bartold [1, 224.] and A.Krimsky conducted their analyses mostly on the social views of Baha ud-Din Walad and Jalal ad-Din Rumi in their research, while R.Fish and D.Shchedrovitsky contributed a lot in the making the information available to the public based on the many important historical manuscripts about the personality and life of the scholars. Also, they were honoured as the authors of historical novels about the Sufi scholars.

Also there was conducted significant research in Iran and Turkey to investigate the scientific heritage of Baha ud-Din Walad and Jalal ad-Din Rumi. The great scholars such as M. Istelami, A. Golpinarli [3, 35.], A. Zarrinkub and U.N. Tupbosh studied the Sufis' creative works by harmonizing their religious and philosophical propositions, whereas Dr. Khasan Kichik conducted his research on the history of Mawlawi *tariqa* formed by the Mawlavis, its ceremonial traditions as well as the rituals of As-Sama' dances.

When we talk about the role of the great mystic scholar Jalal ad-Din Rumi in the development of mysticism, known as a "poet of mankind" and the creator of a unique independent system in the history of philosophy, we should dignify his father, the prominent scholar of philosophy, theology and jurisprudence Baha ud-Din Walad. In addition to having a strong ideological influence on the psyche and spiritual world of Mawlana, this person also contributed a lot in his son so that he could grow as his great ideological successor. Baha ud-Din Walad put much of his effort into the formation of Jalal ad-Din Rumi's unrepeatable mystical thinking and high intellectual potential. Mawlana Rumi received his initial knowledge on mysticism and the stages of gnosis from his master-father. For this main reason, we can clearly feel the influence of the religious and philosophical worldview of Baha ud-Din Walad in the teachings and philosophical propositions of Jalal ad-Din Rumi. As a result of a comprehensive analysis and study of the scientific and philosophical heritage of Baha ud-Din Walad, we begin to get acquainted with his distinctive creative development, literary direction and worldview. In the course of studying the scientific heritage of the mystic thinker, we become convinced that his philosophical ideas on ontological, epistemological and moral issues directly served as the main foundation in the formation of the philosophical teachings of his son.

While the investigation of the common and specific features in the philosophical teachings of both Baha ud-Din Walad and Jalal ad-Din Rumi, we tried to summarize and demonstratively analyze the following parallels and dissimilarities presented in their creative works.

To begin with, we may observe some common features in the philosophical worldviews of these scholars whose main point was to express their evidential propositions on the theme universe and man being proponents of the pantheism doctrine which has served as the key object of philosophical research. That harmony formed the most basic dialectical connection in their teachings. Both Baha ud-Din Walad and Jalal ad-Din Rumi aimed at developing their philosophical teachings being consistent with the God-Nature-Man formula, and that law was central to the teaching of their disciples and preaching long sermons on various subjects. They also emphasized that the substance of all existing things in the universe depends on Allah (the unique, only deity and creator of the universe) and is at his disposal. According to the scholars, Allah has neither form nor shape and no certain material attribute. He is pure and transparent. In their religious and philosophical propositions the Sufi scholars claimed that one should not look for evidence for the existence of Allah, nor can we speak about His creation and essence [18, 316.] as the Lord is in everyone's deep heart. The views of Baha ud-Din Walad and Jalal ad-Din Rumi about the Most High differed from the visions of other philosophers in some minor respects. They advanced the following views of theirs on *waḥdat al-wujūd* (the unity of existence):

First, Allah is in fact pure and absolute of all the creatures. There shouldn't be any dispute about the descriptions given to Him.

Second, the perception of Allah by man in various forms or attributes can also lead to a weakening of the divine love for Him.

Third, the created being (man) must believe in the Creator and Inventor of all things and surrender his will completely to the All-Mighty. Only in this way Man can have a blessing feeling of divine pleasure and reach peace of mind and inward peace.

The views on the qualities and attributes of Allah were originally expressed in Baha ud-Din Walad's book called "Maorif" ("Education"), where the scholar gave a very religious tone to this subject. For that reason, it was somewhat difficult for his disciples and other members of Sufi community to understand the essence of the matter as well. Jalal ad-Din Rumi then analyzed his father's views about the Most Great on the base of his own style and pantheistic worldview, and he tried to combine his teachings on the subject with secularism. Consequently, the issue interpreted in a populist and intelligible style typical

of Rumi, had a significant impact on the worldview of a number of mystics of the medieval Muslim world.

On the basis of theological views both Baha ud-Din Walad and Jalal ad-Din Rumi masterly explained their religious-philosophical views on the unique and singular Allah as well as the relationship between the Creator and His creatures relying on their intuitive knowledge. By examining the scholars' views on this subject, we can be aware of the ideas of Platonism that strongly influenced on the formation of their philosophical worldview. The reason we all know is that the philosophy of Plato is prevailed by the epistemological views about the world of Ideas and Shadows. According to Plato, we live in a world of Shadows; very few people live in a world of Ideas because it is a world of truths. On the word of the philosophy of Baha ud-Din Walad, the human soul comes from the world of Ideas and is placed in a cage called *Wujūd* (being, existence, entity), then it begins to live in the world of Shadows [9, 188]. Only with the command of Allah, it returns to the Supreme World. Jalal al-Din Rumi interpreted this in his own way. He says that man descends from his eternal abiding place that is the Supreme World for a while into the world of dreams, which serves for him like a hotel. After living in this hotel for some time, he will inevitably return to the Supreme World. However, Rumi claims that when the man returns to the real world at the end of his journey, his presence in the world of angels or animals depends on what he has done in the world of shadows for a certain time.

Another common feature of the pantheistic views of both scholars is that when they both discussed the issues of Allah and matter (substance), they placed at the center of their philosophical teachings Man, who is recognized as the crown of the universe and Allah's act of creation. They also emphasize that for man everything else on earth has been created and to him and the expediency and services of his mission everything else has been subjected. As Baha ud-Din Walad states, objective existence in any material world is reflected in the appearance of absolute existence. That is, every being in existence is created by Allah and everything is only at His disposal. According to the law of physics, nothing in the universe exists from nothing, something cannot come from absolute nothing, and nothing in the universe arises spontaneously. Everything created in the universe has its own substantial basis. According to the great thinker, person's appearance, whether it has any defects or not, is not of a high importance. Every human being has the manifestation of Allah in his heart and soul and this very existence forms human's mental states such as danger (fear) and *rijo* (hope). It also creates a state of mental ataraxia and brings peace of mind for human being. Jalal al-Din Rumi, in support of his father's ideas on this subject, writes the following in his philosophical teachings: "Every action of man is a question and it will bring answers to his joys or sorrows. It is necessary to express acknowledgments to Allah for all good answers and to repent to Allah for bad ones" [4, 160]. In his Sufistic teachings, Mawlana indoctrinates that breaking the heart a Mu'min is like breaking the Ka'bah because the Ka'bah is the building of Abraham, but the heart of a Mu'min is the sight of Allah, therefore, we must refrain from hurting or injuring it.

While discussing the Creator and the matter Baha ud-Din Walad states that everything in the universe, from man to the smallest invisible particle, is at the disposal of Allah. His manifestation is represented in the appearance of every being in the universe. Abstract concepts such as beauty, charm, and glamour in the things created in this process also reflect the grace, mercy, and kindness of the Creator. On the contrary, ugly and unpleasant looks represent the wrath of the Creator. The Sufi scholar explains that the Almighty is able to create the image and appearance of the being as He desires.

In the philosophy of Mawlana Jalal ad-Din Rumi, there is the most analyzed and interpreted idea which has been at the center of various debates and has been widely discussed among people for centuries:

"I died as mineral and became a plant,
I died as plant and rose to animal,
I died as animal and I was human,
Why should I fear? When was I less by dying?
Yet once more I shall die human,
To soar with angels blessed above.
And when I sacrifice my angel soul
I shall become what no mind ever conceived.
As a human, I will die once more,
Reborn, I will with the angels soar.
And when I let my angel body go,
I shall be more than mortal mind can know."

"The Creator has shown humanity these things so that it may accept and acknowledge that there are superior powers" [14, 33]. A.Schimmel, a German orientalist, interprets this anthropological idea of Rumi in the following way: "I died as a mineral and became a plant. I died as a plant and became an animal. I died as an animal and became a human. I died as a human being and went to the Almighty and the angels" [10, 288]. The Uzbek philosopher N.Juraev says: "At first sight, Jalal ad-Din Rumi expresses the brilliant idea of inevitability of the extinction of bodies and their transformation from one body into another is similar to the law of nature, but based on a high spiritual and devotional basis, and the representation of the formula "mineral-plant-animal-man" gets the status of a huge constantly rotating circle" [6, 150]. Indeed, in the system of transformation from particle to plant, from plant to animal, from animal to man, from man to angel, put forward by Rumi, it is pointed out that the absolute spirit which is considered the basis of the universe,

moves from simplicity to complexity without going beyond its foundation. When we get acquainted with Baha ud-Din Walad's work "Maorif", we can see that the substance of the above-mentioned idea was created under the influence of that book. The appreciable difference is that Baha ud-Din Walad describes that idea in general in his work: "Man is created by a particle, and due to his virtues or vices in his nature, he is degraded at the level of an animal or raised to the level of an angel" [18, 316]. It is noteworthy that while Baha ud-Din Walad commented on this idea in a general way in his work, Jalal ad-Din Rumi explained it on the bases of the principles of logical sequence, priori knowledge and syntheses. To prove his viewpoint, Mawlana thinks from the point of reductionism on the basis of the main principles of the unity of contradictions and struggle of dialectics.

Also, in his philosophical and mystical teachings, Baha ud-Din Walad speaks about the balance of human spirit and body, and according to his opinion, the human spirit is a reflection of the absolute soul. He compares the human spirit to a bird in a cage. Just as a bird longs for freedom in the cage, so does a human soul (a soul bird) want to be free. As Mawlana states, man's inner world is a world of freedom [15, 113]. According to the scholar's philosophy a captive bird strikes itself on every side of the cage in the hope of freedom and without any doubt hurts its own body, so a human being strains his body in the hope of the desires of the material world, condemning it to torture. This, in turn, increases the soul's desire for freedom. Sometimes, when a person falls into a dead end under the influence of his lusts and excessive material desires, he tries to attempt suicide and becomes fed up with life. All this happens as a result of the inner rebellion of his soul. Jalal ad-Din Rumi writes the following in his famous work "Fihi Ma Fihi" ("In It What's in It"): "It is a city full of beauties and all the other desires of the heart. It is the city of human soul and body. If there are countless professions in it, and if it doesn't make any sense, it's useless. The control of the soul is the most important thing" [17, 191]. As stated by Baha ud-Din Walad, after a person's death, his soul becomes released from the cage called the "body" and starts his way to Allah. And his body returns to its real nature, that is, to the soil. From his dead body returned to the ground, other beings of the material world and various plants begin to emerge. The Sufi scholar asserts that the soul that leaves a person's body after death will live forever but it hardly speaks about the transcendent (beyond) world. However Jalal al-Din Rumi reveals his thinking about the transcendental (present) world as well as the transcendent world by presenting the opposition to Baha ud-Din Walad's views on this subject, and we can witness that in his works he mostly discusses the issues of heaven and hell as well as the Day of Judgment.

Thus, first of all, Baha ud-Din Walad compares the human body to a cage in his book "Maorif", and later we may encounter this analogy in several places in the works of Jalal ad-Din Rumi such as "Fihi Ma Fihi" and "Maṭnawīye Ma'nawī" ("Spiritual Couplets"). This common feature demonstrates the ideological harmony of the philosophical and religious views of great Sufi scholars Baha ud-Din Walad and Jalal ad-Din Rumi.

While speaking about the logical and dialectical connection between the philosophical views of both scholars, we are convinced that there are many similarities and connections between the artistic styles of their works. The greatest common feature of their style is that such works as "Maorif", "Maṭnawīye Ma'nawī", "Fihi Ma Fihi", "Majāles-e Sab'a" ("Seven Sessions") and "Makatib" ("The Letters") were all written in an encyclopedic genre. None of these works was created in a specific field of study, however, such topics as the creation of the universe and man, as well as religious and secular, social, spiritual-educational, moral views took a primary position in those works and in their heritage the scholars mainly discussed the universal values that lead all mankind to spiritual maturity. The works of these scholars also provide information about the ancient state system, procedures and documents in Central Asia [7, 418].

Without any exaggerations we can call Baha ud-Din Walad's "Maorif" an encyclopedic work as it contains a lot of interesting information on various topics and fields. This book helps to enrich the spiritual world of every reader, strengthen his/her faith in Allah, inform him/her about the Islamic knowledge, and convey the truth of life. In his book the scholar discusses the role of spiritual purity and morality in human perfection and provides the samples of the divine dialogues between Allah and the prophets as well as the holy verses from the Qur'an and hadiths. When the thinker speaks on a particular subject, he narrates a story relevant to the subject and to prove his idea, he arouses the reader's interest and engagement by quoting various commentaries from the holy book of Islam and hadiths. Baha ud-Din Walad also cites a number of examples from the philosophical teachings of ancient philosophers, ghazals and narrations of his contemporaries and the poets who lived before him. He also provides his readers with valuable information about the science of medicine and the properties of various medicinal plants, horticulture, in particular, the trees and flowers care tips. In some parts of the work, the readers may read some interesting stories about sexual desires, deal with various word games, get information about the events connected with the well-known people of his time and the interpretations of various dreams.

Jalal ad-Din Rumi also continued his master's tradition in his philosophical teachings and tried to follow the same structure in his works. While getting acquainted with the works of those scholars, we also

begin to recognize Baha ud-Din Walad and Jalal ad-Din Rumi as encyclopedic scholars because in their historical written heritage, they tried to combine their knowledge of theology, medicine, astronomy, logic, philosophy, music, literature, geography, ethnography, folklore, history and jurisprudence.

While dealing with the work "Maorif" created in the spirit of mysticism and science we can see that Baha ud-Din Walad mainly uses the verses of the Qur'an and the wisdom of the hadith as the main ideological source for it. In order to prove his views, he brings quotes from a number of verses and hadiths, tries to give both jurisprudential and poetic interpretations for the quotations, and in many places refers to the works of his predecessors to substantiate his personal interpretations from the religious and scientific point of view. Jalal ad-Din Rumi also tries to follow the tradition and style of his great master. While creating his well-known works and presenting religious and socio-political issues there the scholar tries to pay attention to the verses of the Qur'an and holy hadiths as his father and addresses to his father's work "Maorif" several times. When creating his one of the outstanding books "Maṭnawīye Ma'nawī" known as "Persian Qur'an", Jalal ad-Din Rumi very many times addresses to the conversations conducted with his father in various private gatherings and circles, and the stories and narrations he heard from him. Complementary storytelling, a rational approach, and the morals drawn from each story or parable are directly referenced to the reader's judgment, and everyone's thinking on the basis of his or her own beliefs and worldviews are also among the most important compromising aspects of those thinkers. Such processes, in turn, can serve as an evidence of the existence of mutual unity, harmony and commonality in philosophical views, mystical ideas and works of both scholars.

This fact becomes obvious if we pay close attention to the naming of the works of those scholars, i.e., the works of both thinkers such as "Maorif", "Maṭnawīye Ma'nawī", "Fihi Ma Fihi", "Majāles-e Sab'a" and "Makatib" are not named within a specific field. All of these works are named within the framework of general topics where the issues of spirituality, knowledge, essence and nature of human and the uniqueness of Allah are considered central.

It is common knowledge that the first verse (ayat) of the Qur'an was "Iqra!" which means "Read!" and expresses an order. Allah's first divine address to our Prophet Mohamed was "Read!" Baha ud-Din Walad begins the first verses of his work "Maorif" with the statement "Show the true way ..." Finding the true or right way and attaining the manifestation of Allah is a state achieved directly by following the path of knowledge, wisdom and insight. It is known that three books i.e., "Maṭnawīye Ma'nawī", "Fihi Ma Fihi", "Majāles-e Sab'a" by Jalal ad-Din Rumi have been translated and presented to Uzbek readers. It is worth mentioning that the prologue of all Rumi's works began with a call for getting education and acquiring knowledge. "Maṭnawīye Ma'nawī" begins with the lines "Listen to the reed..." where the word "Listen..." is synchronized with the verse of the first Qur'an's interpretation. In the preface of the first chapter of "Majāles-e Sab'a" the Sufi scholar writes the following words: "It is Allah who wishes every success to some people's work, promotes their progress, improves their living conditions and removes the veil of doubt from their hearts so that they may see His greatness and uniqueness. And also He is the One who leaves his people with their own problems and exiles them to misguidance and ignorance, deprives them of all the blessings, nullifies all their deeds, and defiles the beneficence" [5, 16]. It is well-known that the success of a person depends on his/her intellect and it is usually because of planning his/her deeds based on his/her intelligence and knowledge. However the main reason of a person's misery and ignorance, loss of his/her true way and grief for not being able to continue what he/she has started is also lack of knowledge. We can draw such a conclusion from the wisdom of Mawlana Rumi. Indeed, verse 25 of Surat al-An'am of the Qur'an states the following: "And of them is he who hearkens to you, and We have cast veils over their hearts lest they understand it and a heaviness into their ears; and even if they see every sign they will not believe in it; so much so that when they come to you they only dispute with you; those who disbelieve say: This is naught but the stories of the ancients" [13, 25]. Mawlana's "Fihi Ma Fihi" begins with the commentary on the hadith: "The Prophet (peace and blessings of Allah be upon him) says: The worst of the scholars are those who visit the governors, and the best of the governors are those who visit the scholars and scientists" [16, 13]. It emphasizes that scientists and scholars should be worthy of their status and should stay away from flattery and extortion, while following the knowledge they teach to others. Thus, from the given examples we can understand that Baha ud-Din Walad and Jalal ad-Din Rumi started their works with the lines from Holy Qur'an and hadiths leading and calling people to gain knowledge on the Sufistic manner. This serves as an important factor in understanding the role and essence of science in human development and explaining it to the younger generation, studying and researching the scientific heritage of our great scientists and scholars.

Baha ud-Din Walad's "Maorif" is considered a mystical work that explains the concepts of waḥdat al-wujūd, the principle of the unity of existence. In his work, the scholar states that every *salikh* who deals with the divine knowledge and mysticism, endures all kinds of hardships and sufferings, and completely surrenders himself/herself to the will of the Almighty. Also the Sufi scholar several times emphasizes the posterior idea in his works about the people who know

the level of their *nafs* (selfhood), and leave themselves at the disposal of Allah. Another noteworthy aspect of the philosophical ideas of the scholar is that making friends with people who are ill-natured, fanatic and have other similar vices can lead them to ignorance and humiliation any time. In his philosophical teachings Jalal ad-Din Rumi states the following about this particular idea by approaching to it from a praxiological point of view: "Making friends with dissimulators can even humiliate and degrade the mu'mins (believers)" [2, 42]. The real salikh should keep himself away from such people's company. Help to the people suffering from cruelty and violence. The most superior and noble qualities of humanity is respect for oneself and other people, not using violence, avoiding divisions into small communities that make people hostile to one another, not hating one another etc. We can notice that such ideas of spiritual and moral values presented in Baha ud-Din Walad's "Maorif" are directly reflected in the philosophical teachings of Jalal ad-Din Rumi as well, and a number of such mutual principles determine the significant influence of the scholar on the philosophical teachings of Mawlana Rumi. While saying, "Those who understand the essence of my father's words will understand mine too" Jalal ad-Din Rumi indicates that his father's role is incomparable in the formation of his philosophical and spiritual ideas and in the creation of a unique dialectical system in the history of philosophy.

According to the scholar Abulbaki Gulpinarli, most of the stories of "Maorif" consist of religious-spiritual content, and sometimes one can find some stories full of jokes and word plays. However, while getting acquainted with the works of Jalal ad-Din Rumi, we often come across various funny parables and narrations. Such stories are sometimes presented in the form of ideas and parables on religious and sometimes domestic issues. Those stories had been widely used by Mawlana Rumi mostly to entertain his readers and give them a clear and concise idea of the discussed subject.

Along with a number of religious and philosophical works, Baha ud-Din Walad's "Maorif" also played a key role in the creation and compilation of Jalal ad-Din Rumi's outstanding work "Maṭnawīye Ma'nawī". Some of the stories of that work were repeated in "Maṭnawīye Ma'nawī", while others had a strong influence on the psyche of Mawlana Rumi, and as a result, those stories or parables impressed the readers as a logical continuation of the stories written by his father. Rumi considered his father as his great master, and for that reason, in all his works, he tried to describe the human qualities and mystical thoughts of that great scholar. In addition to highly appreciating the philosophical views of Baha ud-Din Walad, the artistic and aesthetic value of his work "Maorif", created in the religious-mystical spirit, Jalal ad-Din Rumi also caused his readers and admirers to have a unique idea about his father.

It is worth noting that in the works of both Baha ud-Din Walad and Jalal ad-Din Rumi, there were many aspects that did not repeat each other and were fundamentally different from each other. For instance, although the stories of Baha ud-Din Walad were shorter in size than the ones found in Mawlana's works, the complementary stories that came within a particular story had separate and different titles. Jalal al-Din Rumi, on the other hand, tried to give various names for his short complementary stories. Baha ud-Din Walad based his stories mostly on religion, while Jalal ad-Din Rumi used an allegorical approach to religious issues basing his ideas on a secular point of view. Such differences evidence that Mawlana had his own personal position and direction in creating his works, despite the fact that while his creative work he often addressed to his father's heritage.

When it comes to the principles of commonality and specificity in the philosophical views and teachings of both scholars, it should be noted that the formation and development of their philosophical worldview were greatly influenced by the same people. In particular, when analyzing their works, we can notice the elements of traditional teachings of such philosophers as Najmiddin Kubro, Ghazali, Ibn Arabi, Sanoi, Shahobiddin Suhrawardi, Khusayn Khatibi and Farididdin Attar, who had a strong ideological influence on them. Both Baha ud-Din Walad and Jalal ad-Din Rumi used the same sources in creating their literary heritage. Accordingly, the principles of commonality were more prominent in their writing approaches than specificity. Baha ud-Din Walad inherited a rich library of rare books from his father Khusayn Khatibi, and under the influence of those sources, the scholar became Sultan ul-Ulama of his time. When Baha ud-Din Walad left the city Balkh with his family and relatives, he loaded all the books from the library on camels and took them with him. After his death, those valuable books were inherited by his son Jalal ad-Din Rumi. Those unique books served as the main source in Jalal ad-Din Rumi's creation of his independent philosophical teachings. Thus, obviously, the reading of those rare works, serving to enrich the worldview and increasing the intelligence of both scholars, helped to create a chain of common and logically linked ideas in their philosophy. The difference in their teaching was that while Baha ud-Din Walad emphasized mainly religious ideas in expressing his views and opinions, Jalal ad-Din Rumi tried to expand his father's religious views through secular sciences. While the ideas in Baha ud-Din Walad's "Maorif" were given in more generalized form, Jalal ad-Din Rumi divided and synthesized most of his father's ideas into individual and general concepts in his famous works. As a result, the language of Baha ud-Din Walad's work was considered complex and difficult to understand at first

reading, so therefore his "Maorif" was a work that could be read and understood by a small circle of people. Jalal ad-Din Rumi's works quickly became popular at his time because he was able to express his ideas in a simple and quite easy way, which was equally understandable, interesting and enjoyable for all. This is one of the main reasons that Mawlana's works still have retained their world fame among all mankind and they still have served as spiritual nourishment for souls thirsting for spirituality. Baha ud-Din Walad's "Maorif" was a magnificent collection of sermons and advice that he delivered at various meetings and public gatherings, which was considered one of the unique works written in the mystical and moral spirit. The work, created in a mystical way in terms of its name, style of writing and ideas, served as a fundamental basis for the creation and improvement of the system of ideas of Jalal ad-Din Rumi in the field of philosophical history.

Also both scholars, with their unique philosophical teachings had a strong influence on the formation of the ideas of pragmatism in the followers of Sufi and Mawlawi *tariqas*. It is those principles that were one of the main reasons helping the scholars to achieve the dialectical harmony and the scientific genetic connection between their ideas. Such ideological links, in turn, were considered one of the important aspects that ensured the development of Sufi philosophy and the Mawlawi tariqa. Moreover, they served to provide the developmental stages of philosophical thinking in the Near and Middle East and allowed the formation of a rationalist worldview.

Baha ud-Din Walad's philosophical ideas had a significant impact not only on the worldview of his son Jalal ad-Din Rumi, but also on all members of the Mawlawi tariqa. That tariqa was originally composed mainly of members of the Sufi community, including the followers and disciples of Baha ud-Din Walad. That fact provided with valid evidence that Sultan ul-Ulama also made a worthy contribution to the formation and development of the Mawlawi mystical school.

Another similarity which we notice in the philosophical teachings of Baha ud-Din Walad and Jalal ad-Din Rumi relates to their historical and cultural environment. Their ontological and epistemological views were also very close to each other. Both scholars placed love at the highest level when it came to matters of intellect and love. They both believed with the help of mind and love one can understand the essence of existence and events. In his epistemological views, Baha ud-Din Walad taught that the main object of knowledge is Allah and the subject is Man, and wrote that those who seek and those who are sought should be both in harmony [19, 7]. Jalal ad-Din Rumi, in his epistemological teaching, also supported the ideas of his father. He believed that one will not find anything unless he searches it [20, 193]. In another place, Mawlana writes the following wise verses:

Ayo siz jabr chekib izlarsiz ilohiyni,
Ani izlashga hojat yo'q –
Ilohiy – siz
Ilohiy – siz!

(*You will look for the divide and suffer*
No need to search for that
Because divine is you
Because divine is you!)

According to the scholar, man is in fact a hidden treasure in his heart, but he always thinks in the sense that he cannot fully realize his inner potential.

In conclusion, it should be noted that when we make a comparative analysis of the scientific heritage and philosophical views of Baha ud-Din Walad and Jalal ad-Din Rumi, we can clearly notice that there is much harmony and commonality in their worldview and even style of writing. The scientific and spiritual heritage of these Sufi scholars has been playing a vital role in human civilization for centuries. Each of them is a scholar with a unique and appropriate direction, their own word and independent worldview.

When we analyze the philosophical ideas and teachings of both scholars in terms of commonality and specificity, in fact, we can see that all these aspects form a perfect integrity in their worldview providing with a complementary correlation to each other. The chain of thought in their works points to the supremacy of the will, interests, and rights of a higher being called man over all that exists in the universe. A deeper study of the life and work of such prominent figures, who have a worthy place in the development of the history of philosophical thought, a deeper understanding of the essence of their philosophical ideas will undoubtedly inspire any person to spiritual maturity and peace of mind. The philosophical teachings of Baha ud-Din Walad and Jalal ad-Din Rumi, their altruistic ideas that lead all humanity to perfection and maturity, play an important role in educating the younger generation, ensuring the progress and development of spiritual and enlightenment reforms in our society. The rich scientific heritage of Baha ud-Din Walad and Jalal ad-Din Rumi is an important source that helps us to further develop our views on epistemology, axiology, philosophical anthropology, ontology, dialectics, epistemology and anthropology.

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THE MOST IMPORTANT ASPECTS OF STATISTICAL ACCOUNTING OF HOUSEHOLD SECTOR EXPENDITURES IN THE FRAMEWORK OF THE SYSTEM OF NATIONAL ACCOUNTS

Abstract: *The article studies the theoretical and methodological bases of calculating GDP by the cost method, describes the features of this method, as well as suggestions and recommendations for its improvement.*

Key words: *Institutional unit, economic entity, economic activity, resources, system of national accounts.*
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Introduction

In the System of National Accounts (SNA), all economic units are grouped by institutional sectors in order to study income and expenditure flows. The classification unit in the sectoral grouping is the institutional unit. An institutional unit is an economic unit that is able to own assets from its name, accept obligations, participate in economic activities and enter into transactions with other units .At the same time, the exception is households that are considered institutional units. They do not keep accounts, but they can manage their resources, own assets on their own behalf and accept obligations, and are economic entities. Thus, in the "Households" sector, an institutional unit is a household –an individual or a group of persons, who are residents, live together, fully or partially combine their income and property and jointly consume certain types of goods and services, mainly food and housing services. All households are consumers of goods and services, and some are engaged in production activities in the form of unincorporated enterprises (personal subsidiary farms, individual entrepreneurial activity without the formation of a legal entity). Goods and services are produced by households, both for their own consumption and for sale on the side. The productive activity of households cannot be separated from the household itself, either from a legal or economic point of view. The resources of this sector consist of wages for employees, business income, transfer payments (pensions, allowances, scholarships) and income from property (interest on deposits, etc.). All households are the final consumers of goods and services for direct satisfaction of their needs, and not for resale or further processing. The cost of consumer goods and services purchased by a household in order to directly meet the needs and desires of its members is defined as household expenditures on consumer goods and services. They are determined in the amount of their actual payment for consumer goods and services, which is made at the expense of their income. Household final consumption expenditures include purchases of goods and services by residents abroad (for example, during tourist trips) and exclude similar purchases by non-residents in the economic territory of this country (Scheme 1).

Scheme 1. Household expenditure for final consumption

A	Purchase of consumer goods and services by households on the economic territory of the country
B	Purchase of consumer goods and services by non-resident households in the economic territory of the country
C	Purchase of consumer goods and services by resident households abroad
D = A – B + C	**Total expenses of resident households for the purchase of consumer goods and services**
E	Final consumption of goods and services of own production (including services for living in own housing)
F	Final consumption of goods and services received in kind (except for social transfers in kind)
G = D + E + F	**Total household expenditure on final consumption**

At the macro level, in the SNA, the generalizing cost indicator of consumption is household expenditure on final consumption, reflected in the account of the use of disposable income and including expenditures on:

- goods and services purchased by households for final consumption;
- goods produced by households for their own final consumption, including goods and services produced by households for the purposes of final consumption;
- housing services produced by the owners of their own housing for their own consumption (the conditionally calculated cost of the equivalent of the market rent);
- household services performed by hired servants, including servants, gardeners, cooks and chauffeurs;
- goods and services purchased by households in the course of barter transactions for the purposes of final consumption;
- goods and services received by households from producers in the form of payments in kind;
- expenses incurred for the maintenance and maintenance of their own housing by their own forces;
- payments to public authorities for the issuance of various permits, certificates, passports, etc.;
- direct and conditionally calculated fees for the use of financial intermediation services provided by banks, insurance companies, pension funds, etc. by households.

There is a difference between the expenditures for the purchase of goods and services related to final consumption expenditures and expenditures related to other SNA indicators.

Household final consumption expenditures do not include the following elements:

- household expenses for the purchase of goods and services used for production purposes (construction materials, feed, planting material, various tools), payment for veterinary services for livestock, purchase of fuel for vehicles used for production purposes, payment for insurance services for livestock and outbuildings; payment for rent of household premises, machinery, equipment, etc. All the examples given relate to the intermediate consumption of non-corporate enterprises owned by households;
- household expenses for the purchase of movable property (apartments, houses), livestock and valuables (jewelry, precious stones, paintings, antiques with high value), as well as durable goods, for example, the purchase of motor vehicles for the purpose of using them in production activities (are considered as gross accumulation);
- expenses of owners of houses and apartments for the current repair of housing (including the purchase of materials for repairs, but such expenses of tenants of housing are included in the final consumption costs of households);
- travel expenses for travel and hotels (considered as intermediate consumption of enterprises and organizations);
- the cost of food and uniforms for military personnel (refers to the intermediate consumption of public administration bodies);
- expenses for the maintenance of independent divisions of enterprises that provide social and cultural services to their employees, for example, departmental polyclinics, hospitals, rest homes, clubs, etc. (considered as final consumption expenditures of non-profit organizations serving households, financed by current transfers from enterprises and organizations);

- expenses of employers for goods and services carried out to a greater extent in the interests of employers, for example, the cost of special clothing, special shoes, therapeutic and preventive nutrition, professional medical examination, training for advanced training of employees, etc. (refer to the intermediate consumption of the enterprise);

- services for cooking, cleaning of homes and other free services provided by household members;

- expenses for the free provision of medicines and other consumer goods and services to the population or reimbursement of expenses to the population for their purchase, financed from the state budget, funds of state extra-budgetary funds (refer to social transfers in kind).

In addition to the above, there are some items of household final consumption expenditure that are not explicitly identified. For example, payments for obtaining a driver's license relate to current transfers, but payments for driver training courses are classified as purchases of services. Fines relate to current transfers; payments for the rental of consumer goods are classified as expenses for the purchase of services; lottery winnings relate to current transfers, but the difference between the cost of purchasing lottery tickets and winnings is considered as the cost of purchasing market consumer services. Tips are considered as the purchase of services; contributions and donations to public organizations are classified as current transfers; payments for obtaining passports, birth, marriage, and death certificates are considered as the purchase of services. From the point of view of qualitative statistical accounting, it is important to determine the sources of information on household final consumption expenditures. Thus, the initial information for calculating household final consumption expenditures is data on purchases of goods and services by the population. The sources of information for this purpose are: trade statistics data on the volume and structure of retail trade turnover; data on market services provided to the population; statistics on the activities of deckhand farms, personal subsidiary farms; data from a sample survey of household budgets, on the basis of which the structure, dynamics and differentiation of household expenditures are studied. At the household level, consumption is studied on the basis of a sample survey of their budgets. The survey program provides for the collection of information that characterizes not only the income, but also the expenses of the population. Household expenditures include consumption expenditures and non-consumption expenditures. The latter include taxes, deductions for pensions and social insurance and other insurance premiums, money transfers, gifts. Household consumption expenditures cover all current expenditures on goods and services, regardless of whether they were fully or partially paid for during the survey period and whether they were intended for consumption within the household. Household expenses are reflected in the prices of buyers paid by households, including any taxes on products that may be payable at the time of purchase. The buyer's price of the goods is the amount to be paid in order to ensure the delivery of a unit of goods at the time and place determined by the buyer. Consumer spending consists of expenses for the purchase of food, alcoholic beverages, non-food products and expenses for services. They do not take into account the payment of materials and works for the construction and major repairs of residential or utility rooms. Free educational services, medical and other services are not included in consumer expenses. The cost of food in households consists of the monetary expenses for the purchase of products intended for personal consumption within the household, the cost of food outside the home and the cost of in-kind food receipts. A variety of services play an increasing role in household spending.

Their evaluation has its own specifics. Services are a special type of consumer value that exists in the form of useful activities for a person and society. The time of production of services coincides with the time of their consumption. In the expenses for the purchase of consumer services, the object of research is only the services provided to the population that meet the needs of a person.

Collective services that meet public needs (in the field of management, defense, law enforcement, science, etc.) do not belong to this group. The services produced for their own final consumption take into account: services for living in their own home (they are estimated conditionally, in the amount of the costs of providing accommodation in a home) and household services produced by employees (servants, cooks, gardeners, etc.), determined by the amount of remuneration for these workers, including all types of compensation in kind (food, housing, etc.).

The conditionally calculated cost of housing services occupied by their owners is one of the types of conditionally calculated operations for the production of services that do not have a direct market valuation.

The cost of the output of these services should be estimated and included in the total cost of the output of goods and services. To evaluate this type of services, it is recommended to use the market value of renting similar premises, but in practice such an assessment may be difficult due to the lack of primary data on average rental prices. It is allowed to use alternative methods, in particular, an assessment of the current costs of housing maintenance.

The SNA provides for social indicators that are used to analyze the level and quality of life of the population. One of these indicators is the actual final consumption of households– the most important indicator of the standard of living of the population, which reflects consumption not only in terms of their own final consumption expenditures, but also in terms

of expenditures of other sectors produced for the benefit of households. (Scheme 2).

Scheme 2. Actual final consumption households

<table>
<tr><td colspan="2">Final consumption costs</td><td colspan="2"></td><td colspan="2">Actual final consumption</td></tr>
<tr><td colspan="2">Households</td><td colspan="2">→</td><td colspan="2">Households</td></tr>
<tr><td>NCODH</td><td>Individual consumption</td><td>→</td><td rowspan="2">Social transfers in kind</td><td rowspan="2">→</td><td rowspan="2"></td></tr>
<tr><td rowspan="2">State administration</td><td>Individual consumption</td><td>→</td></tr>
<tr><td>Collective consumption</td><td colspan="2">→</td><td colspan="2">Public administration</td></tr>
</table>

The actual final consumption of households consists of three elements: their own final consumption expenditures, the final consumption expenditures of government authorities, and the final consumption expenditures of non-profit organizations serving households (NCODH).

At the same time, household's consumer goods and services at the expense of their own income, as well as non-market individual health, education, and culture services at the expense of state funds and non-profit organizations transferred to households in the form of social transfers in kind.

Although the actual final consumption is determined for all sectors, it is only relevant for analyzing the situation in the household sector. The determining component of the actual final consumption of households is the final consumption expenditure of households, the source of which is their available resources. Final consumption expenditures characterize the level of household income and their purchasing power.

Thus, the indicator of the actual final consumption of households makes it possible to compare the final consumption of households in the space-time plane at the national and international levels, taking into account the social policy of governments and the activities of NCODH.

Currently, the Republic of Uzbekistan continues to implement the updated version of the national accounts-the 2008 SNA, which serves as a mechanism for improving statistics and ensuring international comparability of data. In this regard, it should be noted that the implementation of the SNA-2008 is a long process that requires the development of not only methodological, but also a large number of organizational solutions.

This implies a wide range of conditions, including the necessary improvement of basic statistics and a sufficient level of organizational, financial and human potential in statistics.

For the gradual improvement of macroeconomic calculations in accordance with the 2008 SNA standard, the State Statistics Committee developed a "Set of practical measures for further improvement of economic statistics and the introduction of a modern system of national accounts in the Republic of Uzbekistan", which was approved by Resolution No. 691 of the Cabinet of Ministers of the Republic of Uzbekistan dated August 19, 2019. [1]

The set of practical measures provides for priority measures to improve the statistics of national accounts for the next 2 years.

Medium-and long-term tasks in this direction will be covered in the framework of the development of a National Strategy for the Development of Statistics together with international experts of the World Bank [2].

According to the recommendations of international organizations, the main direction of improving national accounts is the introduction of new provisions of the 2008 SNA that affect the size, structure and growth rates of GDP.

State statistical bodies and other departments responsible for the formation of macroeconomic statistics need to make a number of changes to the definitions and classifications of certain indicators, to accounting and reporting, to sample survey programs.

In the context of the transition to the SNA -2008, a number of issues are considered in the practice of calculating such an indicator of national accounts as household final consumption expenditures:

- one of the conditions for the implementation of the 2008 SNA is the use of the Classification of Individual Consumption by Goals (COICOP) to estimate the final consumption expenditures of households in the GDP structure for all primary classification groups(Scheme 3);

Scheme 3. CLASSIFICATION OF INDIVIDUAL CONSUMPTION BY GOALS (CICG)

(Elements of household final consumption expenditure at the level of two-digit COICOP codes)

Category identification	Categories	Groups
01	Food and non-alcoholic beverages	1.1 Food products 1.2 Soft drinks
02	Alcoholic beverages, tobacco products	2.1 Alcoholic beverages 2.2 Tobacco products
03	Clothing and shoes	3.1 Clothing 3.2 Shoes
04	Housing services, water, electricity and other fuels	4.1 Actual rent for housing 4.2 Conditionally calculated rent for housing 4.3 Maintenance and repair of residential premises 4.4 Water supply and other services related to the maintenance of residential premises
05	Household items, household appliances and routine maintenance of housing	5.1 Furniture, household items, carpets and other floor coverings 5.2 Home textiles 5.3 Household appliances 5.4 Glassware, cutlery and household utensils 5.5 Tools and devices used in everyday life and gardening 5.6 Goods and services used in connection with household management
06	Healthcare	6.1 Medicines, medical equipment and other medical products 6.2 Outpatient services 6.3 Hospital services
07	Transport	7.1 Purchase of vehicles 7.2 Operation of personal vehicles 7.3 Transport services
08	Connection	8.1 Postal services 8.2 Telephone and fax equipment 8.3 Telephone and fax services
09	Recreation and culture	9.1 Audio-visual equipment and photographic equipment, information processing equipment 9.2 Other large durable goods for the organization of recreation and cultural events 9.3 Other goods and equipment for recreation, gardening and pets 9.4 Services for organizing recreation and cultural events
10	Education	10.1 Preschool and primary education 10.2 Secondary education 10.3 Continuing secondary education (specialized secondary) 10.4 Higher education 10.5 Education, not divided by stages
11	Restaurants and hotels	11.1 Catering services 11.2 Hotel services
12	Various products and services	12.1 Personal service 12.2 Personal property not assigned to other categories 12.4 Social protection 12.5 Insurance 12.6 Financial services not classified in other categories 12.7 Other services not classified in other categories

- improvement of calculations of financial intermediation services measured indirectly (UFPIC) and rejection of a simplified approach to the definition of UFPIC as an intermediate consumption of a conditional industry;

- introduction of the method of user expenses when estimating the conditionally calculated cost of living in your own home.

The main activity of financial intermediaries (banks, insurance companies) consists in attracting temporarily free funds from some economic units and providing them to other units for temporary use on a reimbursable basis. The fee for these services is charged indirectly. In the case of banks, this is done by charging interest on loans at a higher rate and paying interest on deposits at a lower rate, that is, income from this activity is formed as the difference between interest on loans and deposits [3].

In connection with this feature of the VSNS, a special approach is applied to the definition of indirectly measured financial mediation services (CIUFP). CIUFP is measured as the amount of property income received by financial intermediaries minus the total amount of interest paid by them, excluding the value of any property income received from investing their own funds, since the source of such income is not financial intermediation. The production of CIUFS is reflected in the production account as part of the output of institutional units of the financial intermediaries sector. It is more difficult to reflect the use of CIUFP in the invoices. The part of it that relates to operations with deposits of the population is included in the final consumption of households.

Also, to improve the statistics of national accounts, an experimental assessment of the conditionally calculated rent was carried out using the "user cost method". Using this method, the volume of production of housing services is calculated as the sum of costs: intermediate consumption, other taxes on production, consumption of fixed assets and net operating profit [4].

One of the priority directions of the development of the Republic of Uzbekistan is to improve the standard of living of the population. This is also recorded in the Action Strategy for the five priority areas of development of the Republic of Uzbekistan in 2017-2021, which specifies specific directions for the development of the social sphere, providing for a consistent increase in real incomes and employment, improving the system of social protection of the population and health protection, increasing the socio-political activity of women, implementing targeted programs for the construction of affordable housing, development and modernization of road transport, engineering and communication and social infrastructure, ensuring the improvement of the living conditions of the population [5]. Progressively, all these directions are being implemented, which is confirmed by statistical data. Thus, the growth rate of household final consumption expenditures in 2017 compared to 2016 was 103.9 %, and in 2018 this indicator reached 105.9 %. According to the results of 9 months of 2019, the growth of household final consumption expenditures amounted to 105.8 %. Currently, thanks to the policy of reforms and openness, the issues of increasing the reliability and analytical value of statistical information, improving the quality of macroeconomic indicators and ensuring their international comparability have become particularly relevant in Uzbekistan [6]. The interest in international comparisons of macroeconomic indicators is associated with the intensification of foreign economic relations, integration processes and the globalization of the world economy. International organizations (the UN, the World Bank, the IMF, the OECD, Eurostat) need comparable information to analyze the state and trends in the development of the world and regional economies, to solve practical problems related to the implementation of their functions. Exchange rates do not provide satisfactory accuracy of comparisons of macroeconomic indicators, since they are intended mainly for servicing foreign economic transactions and do not reflect the purchasing power of currencies [7]. Therefore, in modern international statistics, GDP is compared by calculating the purchasing power parities (PPP) of currencies-coefficients expressing the ratio between the prices of countries. Thus, PPP is a statistical category that is used for currency exchange, is not an instrument of real economic policy (unlike the official exchange rate), but is a tool for ensuring international comparability of GDP. The International Comparison Program (ICP) provides comparable prices and quantitative indicators in different countries for the components of the use of gross domestic product. GDP represents the aggregate of a country's final expenditures for the year, occupies a central place in the ICP, since it characterizes the overall scale of the countries' economies [8,9]. The comparison of its component, such as the actual consumption of households, is important for a comparative analysis of the standard of living of the population. International organizations, national governments, as well as scientific organizations widely use the results of ICP for analytical and practical purposes. Among the most important goals are the following: assessment of the levels of general economic development of countries, the welfare of nations, identification and comparison of the effectiveness of national economies, comparison of economic potential, analysis of the financial capabilities of countries (possible contributions to the budgets of international organizations), development of policies and volumes of assistance from developed countries to developing countries, assessment of poverty levels, analysis of market conditions, international comparisons of price levels, study of

international economic integration, development of economic theories, etc [10].

The upcoming participation of Uzbekistan in the program of International Comparisons in the CIS region based on data for 2020 opens up great prospects in terms of analytical capabilities that allow analyzing the main components of final consumption of households (consumption of food and non-food goods, services) per capita of Uzbekistan.

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QR – Issue QR – Article

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ANALYSIS OF ROLLING PROCESS DESIGN MODELS

Abstract*: The article deals with the traditional principles of design, technical and economic indicators and the introduction of technological design of rolling. The article shows the mode of technological design of rolling, the maximum efficiency of automation of design and construction works, methods of using the mathematical apparatus of the theory of operation research and methods of informal analysis.*

Key words*: rolling, automation, model, computer technologies, design, system approach.*

Language*: English*

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Introduction

In the automation of design design, significant difficulties arise at the stage of formalization of design tasks. In many cases, it is possible to obtain mathematical models that allow the use of only approximate algorithms for solving [1].

The study shows [1-2] that the use of innovative solutions often leads to an excessive rise in the cost of rolling production or real production conditions limit the capabilities of the technologist.

Therefore, having specific knowledge in the field of designing the technological design of rolling, you need to apply them in a specific situation, i.e. own methods of choosing the optimal variant of the technological process [3].

At the modern level, computer technologies and the created mathematical apparatus are able to replace in some cases production experiments and quickly answer the question of what each of the technical solutions gives.

The success of technological design design depends on how deeply the developer understands the process, what arsenal of special technical means and fundamental knowledge he possesses.

When automating technological design, it is necessary to take into account the nature and relationship of a large number of factors that affect the construction of technological design and determine the economic efficiency of manufacturing products and their quality.

At present, along with the development of methods for solving various technological problems of rolling, more and more attention is paid to the

problems of methodology for the design of technological design.

First of all, this is due to the fact that the complication of technological design and the goals facing them, their transformation into complex technical systems comes into conflict with the traditional design principles, which are usually carried out according to the scheme (Fig. 1).

According to this scheme, based on the tasks (goals) of the process, according to the arrangement of the developer, several alternative options for the implementation of technological design are selected.

Technological design options are compared in terms of technical and economic indicators. When comparing on several indicators, the choice of the preferred option for technological design is not strictly justified. After choosing one of the options for it, the development of complete technical documentation, equipment, assessment, etc. is carried out.

This approach to design is explained by the fact that the preparation and implementation time for technological design of rolling is significantly extended.

Today's search, which is carried out by trial and error in a rolling mill, is very expensive.

Compared to the traditional design scheme, system analysis makes it possible to optimize the process by stages of its design.

A significant step in improving the design of technological design of rolling was the creation of statistical models of these processes. The use of statistical models allows you to raise the level of designing processes similar or close to existing ones (modeling) [4]. The principles of constructing an optimal solution adopted in the system approach require one of the criteria as an optimality criterion to evaluate technological design or to set a priori a method for reducing several criteria to one generalized one.

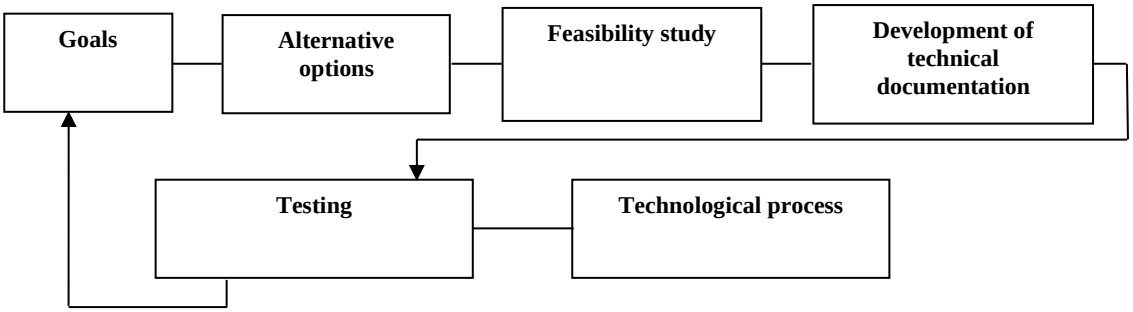

Fig. 1. Scheme of traditional technological design of rolling

To ensure the maximum efficiency of the automation of design and engineering work, it is necessary to introduce a scientific design methodology. The main such design is system analysis, which allows you to combine the system outcome with multi-objective optimization, i.e. synthesize formal and informal research methods (Fig. 2)

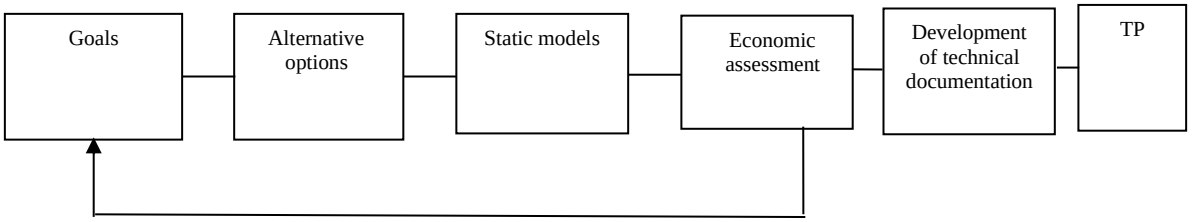

Fig. 2. Scheme of technological design of rolling in the framework of system analysis

Systems analysis is a systematic discipline that develops ways to study a variety of complex systems or situations with unclear goals (criteria).

Such studies are necessary to determine scientifically based programs of action, taking into account not only objective, but also subjective information. The systematic approach uses the mathematical apparatus of the theory of operation research and methods of informal analysis [5].

The main task of the system analysis is to help the researcher develop a unified criterion for assessing an acceptable solution based on the analysis of many disparate factors of indicators characterizing the system and the various solutions associated with them. The formulation of the goals of creating a technological process creates the possibility of choosing related criteria, with the help of which it is possible to quantitatively compare the relative advantages of the options.

The above is achieved by sequentially splitting the goal until indicators (private goals, subgoals) are obtained, which can be estimated either by a

dimensional value (for example, by spending money), or using points (for example, from 0 to 1 for degree of process automation) [6].

The variable parameters that determine the mode of technological design of rolling can be the type of stands, the geometric dimensions of the rolled and rolled stock, the power of the electric motor, the material of the rolls, etc. This approach to technological design is called systemic (Fig. 3).

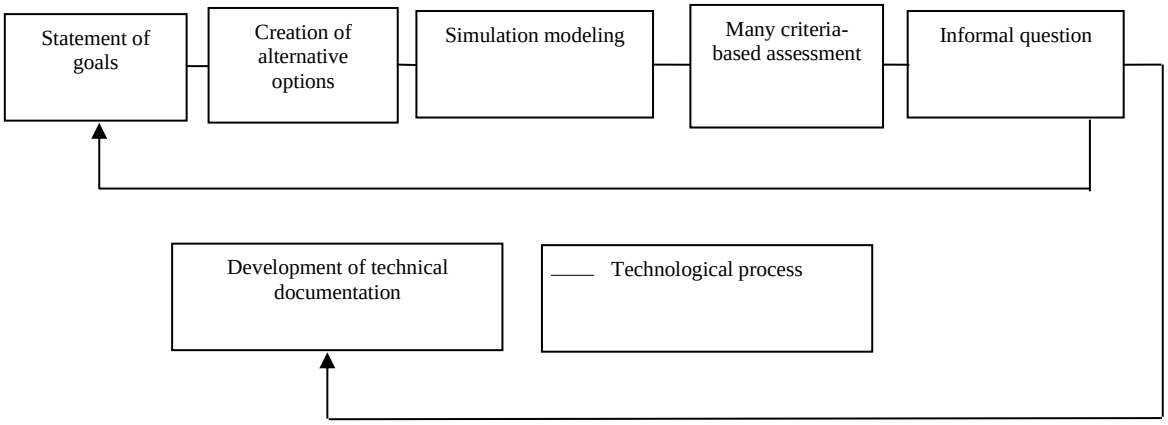

Fig. 3. Scheme of technological design of rolling from the position of a systematic approach

The general goal of the synthesis of a technological process is to compile an extensive set of hypothetical methods for its implementation, developed in sufficient detail for their assessment in the light of the chosen goals [7].

The first step in synthesizing a process is collecting known alternatives from all possible sources. However, it is very difficult to meet the requirements for the maximum completeness of the set of alternatives based on intuition alone. Therefore, in design, methods of directed synthesis, both ordered and disordered, are widely used, leading to optimal design [8].

Recent advances in computer technology have created a new direction in the study of complex processes - simulation [9].

When developing a process model, its internal (exogenous) characteristics and external (exogenous) factors influencing it are linked.

There are models that, on the one hand, are optimization models, i.e. within the framework of which the problems of mathematical programming are solved, and on the other hand - by imitation, i.e. within the framework of these goals, simulation experiments are carried out [10-11].

The main purpose of the analysis of simulation models is to obtain the most desirable values of the decisive variables.

At the stage of assessing possible solutions, the researcher tries to classify possible solutions according to the degree of preference. At the stage of setting the task, indicators are determined, with the help of which they establish the degree of achievement of the goal, in this or another version of the solution.

In most cases, it is impossible to simultaneously obtain ideal values for different indicators, because they often correspond to the need to achieve conflicting goals. So, the requirement of the maximum value of some operating characteristic of the system is not met with a minimum of loss of time and minimum financial costs. In addition, the ideal situation is achieved due to the impossibility of taking into account the influence of some factors.

Conclusion.

As a result of the analysis of the traditional design of rolling in the form of a developed technological rolling scheme from the standpoint of a systematic approach, the rolling efficiency increases 2-3 times.

To select a solution with specific values of variables, it is necessary to transform the vector description of the system with many indicators into a scalar one, i.e. build an objective function.

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THE LINGUISTIC IMAGE OF THE WORLD AND THE GENDER ASPECT OF THE CONCEPT OF «AGE» IN FRENCH AND UZBEK

Abstract: *In this article linguistic scene of the world and gender aspect of "age" in French and Uzbek languages are described. Studying the problem of person nomination has two different natures, linguistic and gender: a) it is possible that linguistic aspect of the problem may be considered as special features of the language, which may influence on the qualities and quantities of the groups of the names of people; b) gender aspect of the problem of the person nomination is connected with socio-cultural factors. Besides, gender aspect of studying person nomination has great importance in the study of interlanguage and intercultural communication.*

Key words: *Reflection, complex, the categories, although language, language, comparative, the anthropocentric, someone, something, between, the previous, and subsequent periods.*

Language: *English*

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Introduction

The methodology of understanding and studying the linguistic image of the world is related to the problem of the relationship of the categories of cognizing to the categories of language. Cognition is the highest form of reflection of existence and the tool of perception of the materialistic world, although language is the material shell of the body, there is an idea behind it. From a practical point of view, consciousness is real in the form of language, and language is a material manifestation of thought.[1] However, it is a mistake to assume that language only records ideas formed with the help of language and reinforces them in sounds. Language is the means of this process of thinking, the reality of this process. Thinking in the form of concepts, reflections, and conclusions is a copy of existence, but language is a copy of phonetics, morphology, syntax, and so on. Being a complex system formed on the basis of the known laws of the elements, and it cannot be called a reflection of existence. Thus, language is not directly related to the physical world, it is only a form of cognizing.

Some linguists[2] point out that language can express not only thought, but also emotion, desire, and feeling, and therefore can be considered as an expression of these spiritual processes. Feelings and desires are expressed not through language, but directly through thoughts and concepts, because not every reflex reaction that a person does involuntarily becomes an element of language. In language, there are forms of expression of emotion that are diverse in nature, but to some extent it is understood (lexical, intonation, grammatical, syntactic). Only certain sounds, which are not included in the system of language in an orderly manner, are direct expressions of subconscious human feelings. These are, for example, words of encouragement.

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The thinking of people who speak different languages is essentially common, which means that different languages have some common features. The specific features of each specific language development are ancient, but they do not go beyond the universal categories of language at all. This general fact requires a comparative study of both the languages themselves and the linguistic landscape of the world.

In the history of linguistics and philosophy, there has never been a school in the history of linguistics and philosophy that has not expressed its views in discussing the logical categories of thought and the problems of the structure of language. From Humboldt to ethnolinguists today, scholars have sought and continue to advance the facts of language differences and the hypotheses that explain their relationship to the spiritual world of man and society.

In the world view, the concept of "age" is considered to be objectively inseparable from the category of "time". The phenomenon of time is incomparably present in the human worldview: time is perceptible, naturally present in the form of changes in various features and conditions. It is as parts of natural time that "age", that is, periods of significant change, are recorded and man's place in time is determined. For this reason, the word "age" in all its modern meanings encompasses the experience and knowledge acquired during the development of mankind, and is associated with the understanding of the phenomenon of "time" by language owners. Correspondingly, the notion of “age” falls into the less general category of “time” and reflects a part of the worldview, while the word “age” is a verbalization of that part.

YD Apresyan[3], ND Arutyunova, A. Vezhbitskaya, AA Zaliznyak, IB Levontina, UV Rakhilina, EV Urison, AD Shmelev, ES In the works of authors such as Yakovleva, there are distinctive linguistic concepts that are specific to the language and have two characteristics: they express the ideas that are most important for the language and culture, and thus to understand the worldview.

The concept of "age", which belongs to the category of "time", also stands out as an important category in the linguistic image of the world. According to TV Tsivyan, the linguistic picture of the world in terms of content is formed from the language units that represent the category of time. They consist of a set of lexical opposites with several opposite meanings, and include pairs that have both positive and negative meanings. These oppositions include the composition of time (day / night, light / darkness, summer / winter, etc.) and various social categories of importance - age, genealogy, social (for men / for women, older / younger, young / old and so on). etc.) related to tribes.

TV Tsivyan introduces time categories into the anthropocentric view of the world. The point of reckoning is the immanent, that is, the place of man in time, not the time inherent in the nature of the event, which arises from its nature. The opposition of time The conceptualization of the concepts of light / darkness, day / night, as well as "year", "century" and "period" is based on the understanding of the time given to man. There is a reason for this: in order to have an adequate position in the world, a person must understand himself at this very moment, at this very place. The main unit of time for a person (the period of his life from birth to death through marriage) is his age, while the shade of time is "baby", "young man, teenager / adult girl", "man / woman", "old man / old woman", Appears in tokens such as "bridegroom", "husband / wife", "widow / widow".[4]

The anthropocentric nature of the worldview in any language makes it possible to compare the composition of its constituent language units and to highlight the peculiarities of verbalization.

It is clear from this information that the concept of "age" in its early stages of understanding in the French worldview is equated with the concept of "time", which is perceived as a description of all life expectancy, length and even permanence.

An analysis of the modern interpretations of the words "age" and "âge" leads to the conclusion that in the worldviews of the two languages being compared, they are completely compatible in terms of meaning and have two general meanings: 1) the existing time the number of years or the appearance, appearance, or appearance of something; 2) a certain stage of development, the existence of someone or something between the previous and subsequent periods.

The Uzbek and French words for the word **"yosh"** and **"âge"**, which have many meanings, belong to a number of synonymous lines or paradigms in the respective languages. There are both semantic synonyms that sharply differentiate the various aspects of the events expressed in these series, as well as stylistic synonyms that give a colorful Baha'i description of the event. Comparing the dictionary definitions and the analysis of the number of synonyms in each of their meanings, we observe that

[3] Апресян Ю.Д. Лексическая семантика. – М.: Наука, 1974. – 367 с.; Арутюнова Н.Д. О новом, первом и последнем // Логический анализ языка. Язык и время. М.: Индрик, 1997. – С.170-200.; Вежбицкая А. Семантические универсалии и описание языков. М.: МГУ, 1999. – 778 с.; Рахилина Е.В. О старом: Аспектуальные характеристики предметных имен// Логический анализ языка. Язык и время. – М.: 1997. – С. 201-217.; Урысон Е.В. Проблемы исследования языковой картины мира: Аналогия в семантике. – М.: 2003. – 224 с.; Шмелев А.Д. Русская языковая модель мира: Материалы к словарю. – М.: 2002. – 224 с.

[4] Цивьян Т.В. Модель мира и её лингвистические основы. – М.: УРСС. 2005. – С. 122.

in both languages the synonyms and word combinations in the general meanings of the words **"yosh"** and **"âge"** are almost identical. Except for one case: in contrast to the French language, the Uzbek language has a different meaning, such as "the last period of life, the years of old age." In other words, this part of the world language landscape is presented in the most discrete way in the Uzbek language. The second difference in the conceptualization of the concept of "yosh" in the Uzbek language is that in the scope of the meanings of this verbalized concept there is a hint of "unknown part of time, period." In French, the meaning of the word "âge" is indistinguishable.

During the comparison of the interpretations of the words **"yosh (age in English)"** and **"âge"**, the anthropocentric nature of the conceptualization of the phenomena of "time" was determined by the "age" of man. In both languages, long periods of time, periods, and the length of a person's life, together with the corresponding synonyms denoting "generation," are "someone's or someone's present life, a period of time; a generation to which someone belongs". It is also important to link the meaning of "period, the stage of human life" in both languages to the passage of historical time, which represents the periods in the history of mankind.

In French, when studying the gender aspect of personal names by the sign of "age", we observe, for example, the following lexemes: garcon - child, boy, fille - a minor girl; a girl, a girl; grown girl, vieux - old man, grandfather, vieille - old woman, old woman. The concept of "age" plays an important role in the integration of the linguistic landscape of the world, because the understanding of the various phenomena of existence on the basis of perceptions, knowledge, values associated with the age-determined periods of human life. One of the characteristics of a human being is his socio-cultural or gender (genetic) affiliation, which is directly related to biological sex and has its own expression in language. At the same time, the gender approach in linguistics reflects the further development of language-oriented learning and allows for a more accurate account of the human factor in language.

Young is an integral element of objective existence, which is reflected in the minds of language owners in the combination of language and speech. The system of young names was considered in the dissertation of GA Putyagin[5] and in the works of ND Arutyunova[6], EV Rakhilina[7]. The study of children's names in Russian was studied by AT Ashkharova[8] and RI Hashimov[9]. VG Gak[10] studied Russian and French, LT Kostina[11] studied English and Russian youth, VI Matveevning[12] (based on Russian, Ukrainian, English), I.Yu. Protsenko (Spanish and Spanish)[13]. on the basis of the material of the Ukrainian languages) comparative research is of great practical and theoretical importance.

Some components of the concept of "age" were also the object of comparative analysis. The national peculiarity of naming people by age was determined from a diachronic point of view by LF Frolova[14], the names of the thematic groups of adults in Russian were analyzed. The concept of "age" as a complex mental complex was considered by IM Lubina[15] in the system of values of Russian, British and American linguocultures.

IN Ziryanova[16] studies the peculiarities of the personal nomination in the texts of marriage announcements (based on materials in English and Russian) on gender and age parameters.

However, in linguistics, it is observed that the nomination of individuals on the basis of "age" is not sufficiently studied in terms of gender, and in French and Uzbek languages are not studied separately and in comparative aspects at all.

The current stage of development of the science of language includes cognitive linguistics, categorization and conceptualization, national and cultural identity of vocabulary and phraseology, intercultural communication, cultural concepts, linguistic aspects of gender research and many others. On the basis of materials of different languages the

[5] Путягин Г.А. О принципах организации групп в лексической системе (на материале имен существительных, называющих человека по возрасту, росту, степени физической силы и степени физической красоты): Автореф. дисс. …канд. филол. наук. – Воронеж: 1975. 56 с.
[6] Арутюнова Н.Д. О новом, первом и последнем // Логический анализ языка. Язык и время. – М.: Индрик.1997. – С. 179-200.
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[10] Гак В.Г. Сопосставительная лексикология (на материале французского и русского языков). – М.: 1977.
[11] Костина Л.Т. Английские и русские прилагательные возраста. – М.: 1978. – 250 с.
[12] Матвеев В.И. Семантическое поле возраста человека(на материале русского, украинского и английского языков). Автореф. дисс. …канд. филол. наук. – Курск: 1987. – 67 с.
[13] Проценко І.Ю. Структурно-семантична характеристика лексики на позначеня віку людини в іспанській мовах. Автореф. дисс. …канд. филол. наук. – Донецьк: 2010. – 48 с.
[14] Фролова Л.Ф. «Великий возрастом» // Рус. речь. – М.: 1987: № 5. – С. 97-98.
[15] Любина И.М. Аксиология концепта «возраст» в русской, британской и американской лингвокультурах. Автореф. дисс. …канд. филол. наук. – Краснодар: 2006. – 48 с.
[16] Зирянова И.Н. Гендерный аспект номинации лица в текстах брачных объявлений. Автореф. дисс. …канд. филол. наук. Иркутск: 2009. – 17 с.

types of linguistic meanings, aspects of lexical meaning, problems of interrelation of lexical and phraseological semantics, questions of semantic structure of linguistic units, peculiarities of lexical nomenclature are studied.

The onomasiological group "Person's Name" occupies one of the leading roles in the lexicon in terms of the richness and diversity of structural-semantic and grammatical forms, which has been of constant interest to linguists for several decades. This problem is solved by VG Gak, ES Kubryakova, GN Abreimova, AS Belousova, OA Dmitrieva, EV Kashpur, E. Oskaar, YR Serl, G. In the works of V. Smirnova, LA Tomashevskaya, ME Fedotova and others.

The name of the person is closely linked to the problems of anthropocentricism in modern linguistics, and these categories are mutually exclusive. The concept of "three" is also studied in a continuous relationship with man, because the human being, even though every object on our planet has the same properties, is primarily concerned with the concept of "age". As a result, there is a need to formulate and develop a new approach to language analysis and interpretation. This will lead to the development of new strategies for linguistic research, the reshaping of the existing system of linguistic points of view, and the formation of a new scientific paradigm in linguistics.

AA Potebnya, E. Kurilovich, O. Espersen, YN Karaulov, YS Stepanov, YI Gin, GK Korbet and others have learnt the language in anthropocentric perspective. Gender orientation in linguistics is the study of cultural differences in gender generalization and its role in social life. Gender studies in linguistics are carried out by foreign and Russian scientists NA Kupina[17], J. Lakof, EA Zemskaya, O. Kamenskaya, II Khaleeva, AV Kirilina, EI Goroshko, OL Bessonova, AM Kholod, EA Zdrovomislova, IV Zikova, AG Fomin, MV Lapshina.

In recent decades, linguistics has paid great attention to the problem of nomination, as well as to the study of the means and methods of naming objects and phenomena that surround existence. Most of the research works are devoted to the problem of nomination, which analyzes in detail various aspects of the process, as well as the specifics of the act of naming certain groups of language units.

The study of the problem of nomination of a person has two types, ie linguistic and gender nature: b) The gender aspect of the problem depends on socio-cultural factors based on biological factors that affect the appearance and use of the individual nomination in speech. In addition, the gender aspect of the study of personal nominations is also important from the point of view of the study of intercultural and intercultural communication.

The study of gender in the methods of nominating a person is directly related to the competence of the field of gender linguistics (in particular, those who study the language nominative system in order to find existing gender stereotypes (patterns) in the language). Based on the above considerations, the relevance of this study is that the nomination act is considered in relation to the socio-cultural factors that affect the emergence of new personal names and the disappearance of existing ones.

Due to the fact that the concept of "age" is interpreted as one of the problems of public interest, in this case, we consider it necessary to take a comprehensive approach to the study of the concept, to understand the results of his research in related disciplines.

In some studies, the age grouping is generally biologically based, as the chronological age is determined by the state of the body's metabolism and functions, as compared to the developmental stage that characterizes the entire population. and the world is marked by a linguistic landscape (F. Aries, VI Karasik, OA Leontevich, V. Foyt, NV Shakhmatova).

The literature on psychology distinguishes four subtypes of age: chronological, biological, social and psychological, each of which has its own expression in language. Chronological or passport age is updated with the number in the language (trante an - 30 years). Biological age is characterized by "milestones of life" and in language the units that represent this or that period of human life (enfance- childhood), as well as with a person in this or that stage of age development (enfant - child garcon –“katta farzand”), is expressed. Emotional age is related to the fact that throughout life a person acquires a set of social roles, and then gradually abandons them: with the lexemes of the psychologist and the lexicon of the parental form in the language, age is the realization of a psychological time when a person perceives his inner age as a separate form of experience. Often the perception of psychological age may not match the chronological age of the individual.

In contrast to the rigid and irreversible sequence of life, the concept of "age" is characterized by the intermingling of its components, such as the linguocultural phenomenon, the distortion of the sequence, the emergence of permeability. All this is connected with the mental processes that reflect the linguistic landscape of man, the change of axiological motives, the national identity.

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ROLE OF FILM ARTISTS IN CINEMATOGRAPHY. HISTORY, LIFE AND CREATIVITY OF FILM ARTISTS IN UZBEK CINEMA

Abstract: *This article provides information about the history of Uzbek film art, life and creativity of Uzbek film artists, reveals the artist's activity in the film in the case of the study of the paintings created by them on the basis of criteria such as the visual solution of the film, the process of composition, the methods used in the film, the color used. The article also provides information about the role of film artists in the process of film.*

Key words: *Uzbek film, film artist, visual solution of the film, Uzbek film history, genre of the film.*

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Introduction

The film artist is doomed in advance to never have a loud fame and fame outside of a narrow professional environment. What naturally falls to the lot of an easel artist is not given to the production designer, because the mass viewer of the film "does not see" his work. The quotation marks are not for nothing — strictly speaking, the artist's creativity manifests itself in one form or another in each frame — after all, it is he who is the main and responsible for recreating the material environment of the film in its entirety — from architectural ensembles to the smallest details of everyday life. At the same time, his artistic and aesthetic ideas, no matter how original they may be, should not contradict the first commandment of cinema art - the creation of the illusion of authenticity on the screen. "What are the problems with authenticity? - the viewer may ask. "After all, real people act in the cinema, it is enough to dress them in appropriate costumes and put them in a suitable environment — and everything will be as real." This reasoning itself contains an answer to its own question — the matter is, indeed, in appropriate costumes and suitable surroundings. But it is the creation of this environment that is very difficult. The creator of the film is, of course, the director. He owns the idea and a special inner concept about certain human relationships that manifest themselves in certain collisions. The actors are the direct executors of his will and the exponents of the conflict. But the one who fills the text of the script and its dramatic interpretation by the director with visible subject content is an artist.

The artist of the film does not just have to clearly imagine what the director wants. At the early stages, he acts as a concrete exponent of the ideological content of the film, offering in his sketches ways to create artistic images. The artist's sketches serve as pictorial explications, that is, visual explanations for the episodes that have not yet been filmed, a series of sketches that consistently reproduce the characteristic moments of the action, being a detailed storyboard, help both the director and the operator, directing and correcting each in their own way. For the episodes, the artist writes sketches of scenery — that is, he offers a background, subject inventory, lighting and depth of space. Thus, in his work, the artist anticipates the emotional and pictorial structure of the film. In creating the subject-spatial environment of the film, the artist should not be just a prop picking up props. He is, as it were, the director before the shooting, because according to his sketches (stopped freeze frames), the director mounts a moving tape of images. In this tape, real people are acting — actors, and the

artist who creates the scenery that leaves the impression of a toy painted house is bad. Therefore, the viewer sees the artist and "does not see", looks and does not guess.

In the Uzbek cinematography in the 1920s and 1930s, theatrical artists B. Cellini, G. Sentyurin and the colorist S. Fedorchenko worked. Their work laid the foundation for the formation of the style and genre of cinema and played an important role in the history of cinema.

After the 1930s, the number of film artists gradually increased in Uzbek cinema, and local artists also appeared. Among Them: Varsham Yeremyan, Emonuel Kalontarov, Narimon Rakhimboev, Bakhtiyor Nazarov, R. Tumankov, S. Ziyamukhammedov, V. Thanks to the work of such prominent filmmakers as Sinichenko, Uzbek cinematography has been enriched. Here is a list of films made during the Soviet era: “You are not an orphan” (1962), “The city of Tashkent bread” (1967), “Noisy child” (1977), “Tuylar Mubarak” (1978), “Duel under the rank” (1979), “Suyunchi” (1982), “bride rebellion” (1984), “children of Tangalik” (1990), “iron wife” (1990), in particular, such films as “abdullajon” (1991) “fields left from my father ”(1997),“ alpomish ”(2000)“ Takhir and Zukhra ”(2000), filmed during the period of independence of Uzbekistan. All of the above films, shot at a high level, have become one of the most recognizable and beloved over the years, both in concept and in meaning, and have become masterpieces of Uzbek cinema.

Below we will get acquainted with the life and work of the filmmakers listed above through the films they made.

1. Varsham Eremyan. He was an artist with an exceptionally broad range of creative thought. Eremyan was at the same time a refined painter and excellent graphic artist with a keen sense of the social aspects of life and sound knowledge of history. Varsham Eremyan was a man of action and at the same time a dreamer, he was a poet and a down-to-earth labourer, a philosopher and creator. The artist was profoundly in love with ancient architecture and yet fully responded to events of the present day. Eremyan's entry into the film world was not accidental. He graduated the Moscow School of Arts and was a progressive and broad-minded person. Eremyan realized the synthetic nature of the cinema and the prospects it opens to the artist. Eremyan's amazing capacity for work, profound knowledge, outstanding creative imagination, thoughfulness and thorough ness, his ability to establish contacts with people have ensured him a leading place within the complicated system of film production.

The artist worked in various genres and with different film directors. Eremyan was the art director in the production of the comedies «Nasretdin in Bukhara» and «Adven tures of Nasretdin», the poetical legend «Takhir and Zukhra», the fairy tale film «Pakhtaoys» and the feature film «Fishermen of the Aral». Eremyan's innovatory talent was demonstrated with particular force in the historical films «Alisher Navoi», «Avicenna» and the film about the revolution «Khamza».

2. Valentin Sinichenko. He began his career as a trick shots artist. With the help and under the influence of Varsham Eremyan he developed into an art director of such well-known films as «Furkat», «On Lenin's Instructions», «Sacred Blood» and «A Poem of Two Hearts». Sinichenko's initial sketches were highly authentic, with great detail, well planned, convenient for the cameraman. His works displayed thoroughness in scale and depicted with great authenticity the architecture and ethnographic features of the time. However at that period Sinichenko lacked some of the emotional content and dramatism with which the scripts of historical and revolution films were charged. Gradually the artist developed his own personal approach to the plastic and colour construction not of individual episodes but of the film as a whole, Sinichenko's sketches for the film «The Planes Failed to Land» display highly publicistic features while his work for the film «Sacred Blood» is filled with drama tension and thoroughness in depicting characters. A number of sketches by Valentin Sinichenko for the film «A Poem of Two Hearts» are very interesting and convincing. The architectural compositions of these sketches with their thorough planning and exact scales form an integral part of the episode's content while the colour acquires an emotional charge.

3. Bakhtior Nazarov belongs to the young generation of artists of the seventies. He devotes much time to easel painting and draws portraits and landscapes which are de monstrated at exhibitions. He also draws slides and works with TV films. Among the best feature films in which Nazarov was art director we would mention «Bundle of Mischiefs which is a film version of a story by Gafur Gulyam. His sketches for the film lack details. The artist strives to convey the general emotional state of individual episodes and the film as a whole through colour arrangement and expressiveness of large parts. The films which have been done by Nazarov are mainly devoted to present-day life, to the youth and its affairs. The events depicted in the film are near to the heart of the artist who knows well the customs and life of his people. The large-scale use of na ture shots, which is a marked trend in the development of the Uzbek cinema, has also played its role. The film «Bundle of Mischief» was a turning point in Nazarov's creative work. In working for the film he studied historical and ethnographical data with greater thoroughness and this had its favourable effect on the quality of the sketches. Along with generalized images there appeared sketches with an authentic historical description. Bakhtior Nazarov is on the first miles of

his creative career. The good training he received under I. Spinel and Y. Pimenov at the USSR Institute of Cinema Art plus his energy and, inquisitiveness promise to make him an outstanding screen artist.

4. Babur Ismoilov. He is known not only for his work in cinema, but also for his paintings, full of hidden meanings and gestures. The artist's peculiar vision is reflected in the films which he worked: “I want” (Uzbekistan, Japan,1997), “Blues” (Uzbekistan,2002), “Fellow Boykenjaev” (Uzbekistan,2002), “Dilkhirozh” (Male dance) (2002), “Percussion” (Uzbekistan,2014).

“Dilkhirozh” (Male dance) (2002) - this is one of his famous films. Close-ups, medium-sized and general shots are perfectly projected in the frame and at the same time are rich in meaning: many parts of the film are revealed through the figure of a tree: planting a poplar at the birth of a child, an old woman sitting in a broom under a tree on the floor, and it is in this place that her death occurs, photographing a family behind a tree, burning a poplar planted in a dream - all this hints that the tree is compared to a person in his destiny. Our national costumes and embroidery are especially noticeable in the film, especially since each of the patterns on the scarves that cling to the groom's face creates the impression that he is telling the viewer about the upcoming event. This is the influence of director Kim Kuduk's film “Empty House”. Another interesting aspect is the circular embroidery pattern behind the head of the domla, on which the dua of marriage is read, indicating that a Divine process is taking place. It is also appropriate to use color in the film, color combinations in costumes. When a girl runs after her boyfriend going to the army, she is wearing a red shirt, which she serves as a tuning fork, and is also a symbolic gesture of protest, grief, which occurs inside the girl from the other side.

5. Bektash Radjabov is the author of the paintings “Super daughter-in-law” (2008), “Thief of my heart” (2009), “Angel” (2010), “Hello, love, goodbye, love” (2012), “Peace” (2013), "Wand" (2013), "Father" (2015), "Save, I fell in love" (2018), "Ring" (2018) and “2000 Farida's Songs” (2021).

"Panoh" (2006) is one of the best films worked by Bektash Radjabov. There are several fight scenes. The film was created in the genres of action, comedy and melodrama. The film has a well-chosen location to capture the atmosphere of the event, the footage is also beautiful, the layout is right, the camera angles are well thought out, the battle scenes are also accurate, and the lights and shadows are used correctly. The costumes for the images are chosen correctly: exotic clothes of bright colors are selected for the image of a spoiled girl, and for a girl divorced from her first marriage - suits with a heavy print. Also, the security guard's costume was matched to their character: one was wearing a black suit, the other a light-colored suit. this film introduces Bektash as a proofessional artist.

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