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ANÍBAL DA SILVA CANTALICE

SERVIÇOS ECOSSISTÊMICOS NO COMÉRCIO DE CERÂMICA ARTESANAL: AVALIANDO OS IMPACTOS AMBIENTAIS E A SUSTENTABILIDADE EM TEMPOS DE PANDEMIA SARS-COV-2

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Dissertação apresentada ao Programa Regional de Pós-Graduação em Desenvolvimento e Meio Ambiente da Universidade Federal do Piauí – PPGDMA – UFPI, na área de concentração Desenvolvimento do Trópico Ecotonal do Nordeste e linha de pesquisa Biodiversidade e utilização sustentável dos recursos naturais, como requisito à obtenção do título de Mestre em Desenvolvimento e Meio Ambiente.

Orientadora: Dra. Roseli Farias Melo de Barros

Coorientadores: Dr. Nélson Leal Alencar
Dra. Ivanilda Soares Feitosa

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Dr. Francisco Soares Santos Filho
Universidade Federal do Piauí – UFPI

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"*Amigos podem seguir caminhos diferentes, mas não deixam de ser amigos.*"

Gon Freecss – Hunter x Hunter

"*Que caminho tão escuro. É tão cheio de areia (...)*
Sete anjos me acompanham. Sete velas me alumeiam"

Ponto para Preto Velho – Alessandra Leal

‘

RESUMO

O ser humano contribui significativamente para a degradação dos recursos naturais em busca de bens de consumo diretos ou indiretos. Preocupada com o bem estar das pessoas e com a manutenção das condições propícias para as gerações futuras, a comunidade científica buscou formas de estudar essas interações e suas consequências na conservação destes recursos. Linhas de pesquisas como Objetivos do Desenvolvimento Sustentável (ODS) e Serviços Ecossistêmicos (SE) surgiram mostrando essa relação antropocêntrica, bem como as consequências desses usos; nesse ponto abordamos o Sars-CoV-2, doença zoonótica, ligada ao uso descontrolado de recursos naturais e as mudanças de nichos ecológicos ou socioculturais ligadas ao ser humano. O artesanato é uma das formas de materialização cultural mais difundida em todo o mundo, atuando como fonte de geração de renda e inclusão social para populações vulneráveis. De modo geral, sua produção está intimamente ligada à utilização de recursos naturais, provocando por diversas vezes a exploração excessiva destes. Diante disso, objetivamos (a) verificar como os serviços ecossistêmicos são usados pelo ofício do artesanato ceramista e que impactos os visitantes do polo cerâmico veem nessa prática; (b) avaliar os ODS que estão de acordo no ofício de artesanato ceramista; (c) avaliar como a atual pandemia de Sars-CoV-2 tem impactado o ofício de artesanato ceramista e de que forma os artesãos estão contribuindo com as medidas de isolamento e controle da doença. Realizou-se um levantamento no Polo Cerâmico do Poti Velho, localizado no município de Teresina, onde ocorre a produção artesanal e comercialização das peças em cerâmica vermelha, em 30 boxes. Os resultados obtidos demonstraram que fatores como escolaridade, tempo de permanência no local de comercialização e percepção influenciam o consumo, bem como existem indicações de que a utilização desse serviço ecossistêmico não é acessível aos grupos mais vulneráveis socialmente. Com isso, entendemos que por mais que os serviços socioeconômicos sejam disponíveis à população em geral, grande parte não consegue usufruí-los. Em relação à cadeia produtiva, os resultados demonstraram etapas obrigatórias e opcionais, sendo esta última encarada como a que permite um maior lucro agregado ao artesanato. Os impactos ambientais são mitigados de maneira superficial, justificados pela falta de condição econômica para a mitigação das mesmas. Em sua maioria os ODS não apresentam indicadores que possam ser utilizados no ofício, contudo, quando aplicados, demonstram que existe um amplo espaço para melhoria do desenvolvimento sustentável. A pandemia do Sars-CoV-2, é uma consequência desse estilo de vida que acabou por impactar as dinâmicas sociais como conhecemos. Diante disso, diversos problemas surgiram no globo,

sendo um deles a restrição das pessoas em seus domicílios, impactando o turismo e todas as atividades dependentes desta atividade. Diante disso, verificamos como os artesãos e/ou funcionários de um polo ceramista, estão passando por essa fase, além dos impactos na atividade e sua adequação às normas da pandemia. Como resultado, obteve-se uma perca considerável na renda dos artesãos, proveniente de uma restrição dos mesmos e da impossibilidade de produzir ou vender esses produtos. Como conclusões observou-se que as atividades turistas sofreram diversos impactos e podem sofrer numerosas perdas.

Palavras-chave: Objetivos do Desenvolvimento Sustentável. Serviço Ecossistêmico Cultural. Socioeconômico. Doença Zoonótica. Artesanato.

ABSTRACT

The human being contributes significantly to the degradation of natural resources in search of direct or indirect consumer goods. Concerned with the well-being of people and with the maintenance of favorable conditions for future generations, the scientific community sought ways to study these interactions and their consequences in the conservation of these resources. Research lines such as Sustainable Development Goals (SDGs) and Ecosystem Services (SE) have emerged showing this anthropocentric relationship, as well as the consequences of these uses; at this point we approach Sars-CoV-2, a zoonotic disease linked to the uncontrolled use of natural resources and changes in ecological or socio-cultural niches linked to humans. Handicrafts are one of the most widespread forms of cultural materialization worldwide, acting as a source of income generation and social inclusion for vulnerable populations. In general, their production is closely linked to the use of natural resources, causing their overexploitation several times. Therefore, we aim to (a) verify how ecosystem services are used by the craft of ceramic crafts and what impacts visitors to the ceramic pole see in this practice; (b) evaluate the SDGs that are in agreement in the craft of ceramic crafts; (c) assess how the current Sars-CoV-2 pandemic has impacted the craft of ceramic crafts and how artisans are contributing to measures to isolate and control the disease. A survey was carried out at the Poti Velho Ceramic Pole, located in the city of Teresina, where artisanal production and commercialization of red ceramic pieces takes place, in 30 boxes. The results obtained showed that factors such as education, length of stay at the place of sale and perception influence consumption, as well as there are indications that the use of this ecosystem service is not accessible to the most socially vulnerable groups. With that, we understand that even though socioeconomic services are available to the general population, a large part is unable to enjoy them. In relation to the production chain, the results showed mandatory and optional stages, the latter being seen as the one that allows greater added profit to handicrafts. Environmental impacts are mitigated superficially, justified by the lack of economic conditions to mitigate them. Most of the SDGs do not have indicators that can be used in the trade, however, when applied, they demonstrate that there is ample scope for improving sustainable development. The Sars-CoV-2 pandemic is a consequence of this lifestyle that ended up impacting the social dynamics as we know it. In view of this, several problems have arisen around the globe, one of which is the restriction of people in their homes, impacting tourism and all activities dependent on this activity.

Therefore, we verified how the artisans and / or employees of a ceramics pole, are going through this phase, in addition to the impacts on the activity and its adaptation to the norms of the pandemic. As a result, there was a considerable loss in the income of artisans, resulting from their restriction and the inability to produce or sell these products. As conclusions, it was observed that tourist activities suffered several impacts and can suffer numerous losses.

Keywords: Sustainable Development Goals. Cultural Ecosystem Service. Socioeconomic. Zoonotic disease. Crafts.

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Sumário

1. INTRODUÇÃO

A espécie humana tem uma contribuição significativa na crescente degradação dos recursos naturais por todo o mundo, principalmente em países tropicais, por meio da fragmentação florestal, e/ou expansão dos grandes centros urbanos (LIPORACCI *et al.*, 2017). De acordo com as Nações Unidas (2019a), cerca de 55,3% da população se encontra em ambiente urbano, e em grandes regiões como a América Latina e o Caribe esse valor pode chegar a 80,7%. Esse processo de urbanização leva à aglomeração populacional, aumentando a necessidade de serviços ecossistêmicos para a manutenção da população, o que ocasiona um dos maiores problemas socioambientais do século XXI (MCDANIEL; BORTON, 2002).

A busca por produtos e bens de consumo, de maneira direta ou indireta, gera uma gama inimaginável de mercados, esses por sua vez impactam na conservação da biodiversidade em grandes centros (CHAN *et al.*, 2006; FREITAS *et al*., 2010). Tal cenário, fez com que a comunidade científica, preocupada com o bem estar das pessoas e a manutenção das condições propícias para as gerações futuras, buscasse repetidas vezes o alerta sobre a necessidade se tornar mais parcimoniosa nossa relação com a natureza (ANDRADE; ROMEIRO, 2011). Visto isso, nos últimos anos, observou-se um crescente interesse pelo estudo dos ecossistemas e seus serviços ofertados (MILCU *et al.*, 2013).

A avaliação dos serviços dos ecossistemas (SE) surge como uma abordagem que busca estudar as relações entre os ecossistemas, os serviços prestados e suas associações com o bem-estar humano (RAU *et al.*, 2019). Exercer essa perspectiva tem sido um desafio para os cientistas, que tem como objetivo central identificar as principais mudanças nos serviços de diferentes ecossistemas, com base principalmente em decorrência das atividades antropogênicas (KUMAR; KUMAR, 2008; RAU *et al.*, 2019). Os serviços ecossistêmicos são divididos em: apoio (*e.g.* formação do solo, aderência); provisionamento (*e.g.* água doce, nutrição humana); reguladores (*e.g.* regulação climática, ar purificado) e culturais (*e.g.* recreação, espiritualidade), e existem independentemente das necessidades humanas (ASSESSMENT, 2005).

O artesanato em cerâmica representa uma das principais formas de expressão cultural criada pelo homem (CASTILHO *et al.*, 2017). De forma geral, podemos considerar o artesanato como um SE cultural e SE provisão. Segundo Cantalice e Alencar (2019) o uso de técnicas que permitem a transformação de recursos naturais em bens duráveis, representa um passo importante na construção social e cultural das sociedades. Os principais recursos normalmente utilizados para a produção de cerâmica artesanal são argila, água e combustível (ver CANTALICE; ALENCAR, 2019).

Nesse contexto, esse trabalho teve como pergunta norteadora, compreender como os serviços ecossistêmicos são utilizados no artesanato ceramista. O que depreendemos desde os benefícios geradores de bem estar aos consumidores, aos impactos à conservação da biodiversidade. O estudo dos serviços ecossistêmicos com foco no ofício do artesanato ceramista, além de contribuir na elucidação de questões pouco conhecidas, tem uma contribuição prática muito importante acerca da sustentabilidade e conservação da biodiversidade deste ofício.

Diante do exposto, e reconhecendo a importância das políticas públicas na promoção da conservação dos recursos naturais, tem-se como segundo eixo de investigação o de avaliar a contribuição do ofício do artesanato ceramista no cumprimento dos objetivos de desenvolvimento sustentável (ODS), proposto pela Organização das Nações Unidas (ONU, 2019b). As ODS foram propostas durante uma reunião da ONU, que tinha como objetivo elaborar formalmente uma agenda de desenvolvimento sustentável a serem implementados por todos os países do mundo durante os próximos 15 anos, até 2030. Os objetivos e metas propostas por essa agenda, vão desde a erradicação da pobreza à manutenção de uma vida saudável e segura nas grandes cidades por todo o mundo (ONU, 2019b).

É baseado nessa perspectiva de segurança e manutenção de uma vida saudável das pessoas por todo o mundo, que diante do atual cenário de pandemia do Sars CoV-2 (novo coronavírus), temos como terceiro eixo de investigação a avaliação da percepção dos artesãos acerca dos impactos dessa pandemia no ofício de artesanato ceramista. O homem, ao invadir as áreas florestais a fim de suprir suas demandas, promove o desmatamento, levando à fragmentação e perda de habitats, favorecendo por diversas vezes as condições propicias para a aproximação da vida selvagem (ANGELSEN, 2010; VOLPATO *et al.*, 2020). Este acercamento do ambiente natural pelo sujeito, promoveu o aparecimento de diversas epidemias com menores proporções que a atual (*e.g.* Sars na China, Mers na Arábia Saudita) (DECARO; LORUSSO, 2020), no entanto, mesmo após tantos alertas, o modo atuante de vida e as demandas das grandes cidades fazem com que a humanidade persista na exploração dos recursos de forma desenfreada (LAMBIN; MEYFROIDT, 2011; WILLETT *et al.*, 2019), culminando na atual epidemia. Diante do cenário supracitado, serão testadas as seguintes hipóteses:

- **H1**: O tempo de permanência dos visitantes no polo cerâmico afeta o consumo de artesanato;
- **H2**: Fatores socioeconômicos dos visitantes interferem no tempo de permanência e/ou consumo do artesanato no polo cerâmico;
- **H3**: A percepção dos visitantes acerca dos impactos socioambientais gerados pelo ofício ceramista influência o consumo do artesanato;
- **H4**: A cadeia produtiva é afetada por fatores internos e externos a ela;
- **H5**: Os objetivos do desenvolvimento sustentável seguidos no polo cerâmico ainda são deficitários;
- **H6**: A percepção de risco de contágio local está relacionada com as medidas de contenção do vírus;
- **H7**: As medidas de isolamento social estão relacionadas ao impacto da atividade ceramista;
- **H8**: Os fatores socioeconômicos estão relacionados a percepção de risco de contágio local.

Dessa forma, os objetivos centrais dessa dissertação estão distribuídos em três eixos distintos: (a) analisar os serviços ecossistêmicos utilizados pelo ofício do artesanato ceramista; (b) avaliar a contribuição do ofício do artesanato ceramista no cumprimento dos objetivos de desenvolvimento sustentável (ODS) proposto pela Organização das Nações Unidas (ONU); (c) avaliar a percepção dos artesãos acerca dos impactos da pandemia de Sars CoV 2 no ofício de artesanato ceramista.

A dissertação encontra-se dividida em elementos pré-textuais e textuais (Introdução, Revisão de literatura e Referências), seguindo as normas da ABNT vigentes e em artigos científicos que seguirão as normas exigidas pelos periódicos selecionados à publicação, Conclusões, Apêndices e Anexos. No artigo um, verificamos a partir dos serviços ecossistêmicos, como esses são usados pelo ofício do artesanato ceramista e que impactos os visitantes do polo cerâmico veem nessa prática. No artigo dois, examinamos quais objetivos de desenvolvimento sustentável da ONU estão de acordo como o ofício de artesanato ceramista. No artigo três, consideramos como a atual pandemia de Sars CoV-2 tem impactado o oficio de artesanato ceramista e de que forma os artesãos estão contribuindo com as medidas de isolamento e controle da doença.

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2. FUNDAMENTAÇÃO TEÓRICA

Poucos '*objetos*' seguiram o homem e foram tão presentes em diferentes culturas quanto a cerâmica (GAIDZINSKI *et al.*, 2009; IIZUKA, 2018; MATIN; TITE; WATSON, 2018). A produção cerâmica envolve a utilização de recursos naturais moldados, que podem assumir diversas formas de acordo com a cultura que estão sendo produzidos (CANTALICE; ALENCAR, 2019). Nesse sentido, ao mencionar a utilização de recursos naturais na produção cerâmica, a argila e a madeira se destacam como recursos insubstituíveis (CANTALICE; ALENCAR, 2019; SILVA; RAMOS; ALVES, 2019). Já a cultura que está inserida, vai determinar quanto, de que forma e quem irá produzir, dentre outras características do ofício.

Antes de continuar, gostaríamos que os leitores utilizem da nossa visão de cultura, uma vez que a mesma pode ser entendida de diversas maneiras (JAHODA, 2012; KLUCK-HOHN, 1954). Fazemos assim uso do entendimento de cultura de Mesoudi (2011), utilizado na construção da evolução cultural, na qual crenças, conhecimentos, costumes, habilidades, atitudes e línguas fazem parte de uma entidade maior, '*cultura*', e estas podem ser descritas por intermédio do processo evolutivo darwiniano. Este processo gera consequências que explicam a permanência e/ou difusão de um traço cultural (ACERBI; MESOUDI, 2015).

De certo que a produção cerâmista é influenciada pela '*cultura*' em seus mais diferentes aspectos, e essa influência leva a construção de diferentes produtos, tais como: religiosos, utensílios, decoração, entre outros (CANTALICE; ALENCAR, 2019). A incorporação da '*cultura*' local à cerâmica, aliada às técnicas (artesanais) empregadas na construção, agrega um valor simbólico e/ou monetário a estes produtos (CAMPBELL, 2005; JOY *et al.*, 2014). A forma como tais itens são '*enxergados*' pelos compradores vai depender de como estes interpretam o ofício e os produtos derivados deles, '*investindo*' uma maior quantidade de dinheiro. (JOY *et al.*, 2014). É certo que diferentes fatores socioeconômicos e de percepção influenciam na forma como os '*consumidores*' vão reagir a esse cenário (HU; YU, 2007).

Seria impossível separar o ser humano das influências de sua estadia no meio ambiente, sendo esta em pequena ou grande escala (BRUDLER *et al.*, 2019; MUNAWER, 2018). Por mais que algumas sociedades usem de técnicas que venham a mitigar o impacto, este ainda persiste. A coleta de argila para produção de bens, bem como a coleta de madeira são exemplos de atividades que podem gerar diferentes grandezas de impactos, sendo estes

menor ou maior a depender da utilidade desses bens (NICKLIN, 1979; PACKEY; KINGSNORTH, 2016).

A produção de utensílios em cerâmica requer a utilização de determinados recursos, dentre estes a madeira é o único que poderia ser substituído por outros métodos de queima (*i.e.*, fornos elétricos ou a gás liquefeito de petróleo), contudo, este cenário não é observado em grupos sociais pequenos e com acesso a recursos financeiros limitados (CANTALICE; ALENCAR, 2019; SILVA; RAMOS; ALVES, 2019). Entender os impactos ambientais e os possíveis motivadores, permite uma reflexão acerca das formas de assegurar a utilização deste ofício com dependência direta de recursos naturais e criar maneiras de adequar estes a grandes projetos, que visam mitigar os impactos do ser humano no meio ambiente (NKALA; MANGO; ZIKHALI, 2011).

Esses impactos muitas vezes são lembrados principalmente pela escassez dos recursos necessários à comunidade (CUVELIER *et al.*, 2018; DISLICH *et al.*, 2017). Mesmo sendo estes os resultados '*mais comuns*' e que levam à produção de pesquisas que determinam possíveis reações destas comunidades à falta deste recursos, nos últimos anos surtos de doenças zoonóticas têm-se mostrado como consequências reais deste uso inconsequente dos recursos naturais (MOLYNEUX *et al.*, 2011), todavia, poucos são os estudos que demonstram os impactos destas doenças no estilo de vida de quem pratica o ofício e de como estes percebem os impactos causados por essas enfermidades.

2.1. Onde estamos no meio ambiente?

Os '*filtros*' que podemos usar para entender e interpretar determinados '*objetos*' são múltiplos e incalculáveis, variando de acordo com os grupos sociais, escala espaço-temporal, religião, entre outros fatores. Esses '*filtros*' por sua vez, variam de acordo com o ambiente cultural, sendo este o responsável por modular a percepção e ação a um determinado '*objeto*', de acordo com o grupo que está inserido (BOYD; RICHERSON; HENRICH, 2011). Historicamente, a natureza que nos cerca foi interpretada de diferentes maneiras. Dentre essas interpretações as quais se destacaram com maior predominância nas sociedades foram o '*antropocentrismo*' e '*ecocentrismo*' (KORTENKAMP; MOORE, 2001).

Campbell (1983), relata que no termo '*antropocentrismo*' foi evidenciado em 1860, junto às controvérsias que se desenrolaram com a teoria da evolução de Charles Darwin, que retirava o ser humano do centro do universo, colocando-o como um indivíduo dentro do sistema ecológico. O termo '*antropocentrismo*' assume que a importância da natureza está

intimamente relacionada às múltiplas satisfações do homem, sendo estas econômicas ou não (CAMPBELL, 1983; HOFFMAN; SANDELANDS, 2005). Entretanto, existem autores que salientam que a terminologia aplicada é mal compreendida, uma vez que o problema não estaria no bem-estar humano, mas no privilégio deste bem-estar em relação aos indivíduos de outras espécies (HAYWARD, 1997; KIDNER, 2014).

O termo '*ecocentrismo*' surgiu em contraposição ao '*antropocentrismo*', defendendo que a natureza precisa ser protegida pelo seu próprio valor intrínseco e respeitando sua integridade, reconhecendo assim sua dependência e ignorância perante a complexidade desses sistemas (CAMPBELL, 1983; HOFFMAN; SANDELANDS, 2005). Embora, Kortenkamp e Moore (2001) tenham exemplificado a *ética ecocêntrica* com base no termo '*biocêntrismo*', Henderson (1913) e outros autores costumam atribuir aos termos '*ecocêntrico*' e '*biocêntrico*' um patamar de sinônimos (KOPNINA et al., 2018). Existem diferenças entre os termos, uma vez que o termo '*ecocêntrico*' implica em igual valor aos seres bióticos e abióticos e o termo '*biocêntrico*' por sua vez, dá um valor maior a parte biótica da natureza (ROWE, 1994).

Em síntese, as duas perspectivas tentam determinar o lugar do ser humano no meio ambiente, porém, em nossa visão, nenhuma das teorias levem em consideração o *status quo* do ser humano e a sua capacidade de modificar o ambiente ao seu redor. Darwin (1964), em *The Origin of Species,* cautelosamente evidenciou que os seres humanos e animais apresentam um processo evolutivo e assim estariam dentro da mesma condição dentro da natureza; os ensaios feitos por Darwin demonstraram a capacidade de transformação humana pela habilidade de domesticação. O processo de domesticação consiste em selecionar indivíduos de forma artificial com melhores características, a fim de gerar herdeiros com essas características (MACFADYEN; BOHAN, 2010). Embora esse processo não seja exclusivo da espécie humana, (SCHULTZ; BRADY, 2008) foi a aquisição dessa habilidade que permitiu a ascensão dos *Homo sapiens* como conhecemos atualmente (DIAMOND, 2002).

O processo de domesticação possibilitou a mudança de caçadores-coletores para fazendeiros-sedentários, que por sua vez resultou em dois processos: mudanças em espécies de plantas e animais (DRISCOLL; MACDONALD; O'BRIEN, 2009; MEYER; PURUGGANAN, 2013) e no comportamento humano (DIAMOND, 2002). Essa habilidade é tão marcante que é citada por Boivin *et al*. (2016) na descrição das principais fases da transformação antropogênica (*i.e.,* colonização global; propagação da agricultura e pastoralismo; colonização de ilhas e urbanização e elaboração de rede de comércio). Um

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processo mais amplo resultante dessas transformações foi a domesticação da paisagem, que teve como intuito gerar um maior bem-estar a um grupo social (LEVIS et al., 2020).

Essa seleção do que é útil e melhora o bem-estar humano, resultou em mudanças de abundância, composição, estrutura e ocupação de ambientes a diversos organismos, levando ao entendimento que a maioria dos biomas é resultado de intervenção antropogênica (BOIVIN et al., 2016; SCHWÄGERL, 2013). Esse pensamento coloca o *Homo sapiens* como um construtor de nicho, uma vez que ele é capaz de modificar substancialmente o ambiente biótico e abiótico, e essas alterações são capazes de criar novas pressões seletivas no próprio homem ou em outras espécies (Albuquerque et al., 2019; Albuquerque et al., 2018).

Durante esse processo de construção e domesticação da paisagem em busca de um bem-estar aos seres humanos, diversas sociedades aderiram ao pensamento antropocêntrico, isolando-se em ambientes cada vez menos naturais, o que culminou em um verdadeiro *apartheid* entre ser humano-natureza (TIDBALL; STEDMAN, 2013). Os grupos sociais se organizaram em diferentes espaços, que aqui denominaremos como '*cidades*', estas por sua vez apresentam diferentes níveis de '*urbanização*'. Urbanização é um processo de mudança de paisagem e estilos de vida, que possuem definições distintas a depender da disciplina que a mesma é enquadrada (SETO et al., 2012). Durante muito tempo, tal desenvolvimento foi visto como puramente demográfico e em seu decorrer passou a englobar mudanças ambientais, sociais, padrões de consumo e instituições (HAASE et al., 2011).

O que podemos entender é que existe um *continuum* entre o que seria rural e o urbano, ficando muitas vezes impossível definir sua diferenciação (Ward & Shackleton). Algumas das diferenças que são relatadas em diversos trabalhos é a dependência direta dos ecossistemas locais, uma vez que em zonas rurais o emprego ou modos de subsistência vêm de atividades ligadas aos ecossistemas, tais como: agricultura, pastoreio, extração de recursos naturais *etc.* (HAMANN; BIGGS; REYERS, 2015; SUNDERLIN et al., 2005), já as zonas urbanas importam todos os seus recursos são importados de outros locais (SUKHDEV et al., 2013).

Esse *continuum* pode ser observado em grande parte das cidades de países em desenvolvimento, onde os papéis urbano e rural se misturam de forma quase que orgânica, nesses lugares (SUKHDEV et al., 2013). O que dá margem a grupos sociais que dependem integralmente de recursos ecossistêmicos, tais como associações pesqueiras (HANAZAKI et al., 2000), caçadores (ALVES et al., 2010), ceramistas (CANTALICE; ALENCAR, 2019) entre outros, todos estes em cidades '*urbanas*'. São essas localidades que podem sofrer com

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a perda destes recursos, devido às mudanças antropogênicas nos serviços ecossistêmicos locais, provocando problemas não só ambientais como sociais.

2.2. Afinal, tudo é serviço?

A Avaliação do Ecossistema do Milênio (MA), usou o termo '*serviços ecossistêmicos*' como uma maneira de agrupar e assim descrever as relações entre as sociedades e ecossistemas (ASSESSMENT, 2005; AYLWARD; BANDYOPADHYAY; BELAUSTEGUIGOTIA, 2005). Por definição, os serviços ecossistêmicos provém benefícios mensuráveis ao ser humano, sendo esses em termos de saúde ou bem-estar econômico e/ou significado cultural (EHRLICH; MOONEY, 1983). Para Washington *et al.* (2017), essa visão de colocar os seres humanos no centro da natureza e mensurar a saúde dos ecossistemas baseados simplesmente no bem-estar humano é totalmente antropocêntrico.

Dividido em quatro categorias, os serviços ecossistêmicos são: apoio, provisionamento, regulação e cultural (ASSESSMENT, 2005; AYLWARD; BANDYOPADHYAY; BELAUSTEGUIGOTIA, 2005). Os serviços de *apoio* são imprescindíveis para a produção dos outros três serviços ecossistêmicos, os quais e incluem a produção de biomassa, ciclagem de nutrientes, criação, retenção e provisão de habitat, sendo assim o único serviço que apresenta benefícios indiretos para os seres humanos (ASSESSMENT, 2005).

Serviços de *provisionamento* são produtos obtidos diretamente dos ecossistemas que atendem às necessidades básicas do ser humano como nutrição, abrigo, segurança, água doce, entre outros (ASSESSMENT, 2005; PAN; WU; XU, 2014). Os serviços *reguladores* são os que garantem a bioestabilidade dos ecossistemas, agindo na regulação de água, clima, inundações, além de atuar em processos biológicos como polinização, mudanças climáticas *etc.* (ADHIKARI; HARTEMINK, 2016; STÜRCK; POORTINGA; VERBURG, 2014).

Serviços *culturais* incluem benefícios não-materiais que o ser humano experimenta, sendo estes: patrimônio recreativo, sistema de conhecimento, cultural, estético, educacional, valores espirituais/religiosos (ASSESSMENT, 2005). Caracterizando-se por sua intangibilidade, tendo seu valor atribuído por parte dos indivíduos pelas culturas as quais estão inseridas pela contribuição ao bem-estar (MILCU et al., 2013). O ambientes cultural, local e econômico (dinâmicas das sociedades), são os principais '*filtros*' para a determinação se, por exemplo, uma floresta pode ser considerada uma fonte de renda, o que colocaria essa

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nos *serviços de provisionamento* ou um local sagrado que não permite a extração de recursos (WADLEY; COLFER, 2004).

2.3. Como conservar os ecossistemas?

O Antropoceno foi instituído como um novo período geológico, tentando evidenciar as mudanças ambientais provocadas pelo ser humano (STEFFEN et al., 2011). A integridade da biosfera (taxa de extinção), fluxos biogeoquímicos (nitrogênio e fósforo), sistema terrestre (florestas remanescentes) são fenômenos que já passaram do "limite recomendado" para a segurança do modo de vida como vemos (ROCKSTRÖM et al., 2009; WHITMEE et al., 2015).

Esse cenário lançou luz sobre a necessidade de mudanças globais coordenadas que possibilitem criar medidas mitigadoras. A primeira resolução foi os *Objetivos do Desenvolvimento do Milênio* (ODM), durante a cúpula do milênio da Organizações das Nações Unidas (ONU) em 2000, que apresentou oito objetivos com 21 metas a serem executadas de forma *top-down* que visavam diminuir mazelas como pobreza, baixo grau de instrução, degradação ambiental, equidade de gênero entre outros que duraram entre 2000 a 2015 (SACHS; MCARTHUR, 2005), contudo, alguns déficits na aplicação como as promessas de ajuda dos países mais ricos aos mais pobres, não possibilitou grandes mudanças em todos os países participantes, por mais que no geral os efeitos tenham sido significativos (SACHS, 2012). Em geral, a riqueza absoluta é a principal variável para o aumento do impacto absoluto, ficando o tamanho populacional e a má governança como variáveis menos expressivas, porém significativas (BRADSHAW; GIAM; SODHI, 2010).

O entendimento de melhoras globais no que tange principalmente a pobreza, fome e doenças, provenientes dos objetivos dos ODM, levou as unidades governamentais a instituírem modelos aprimorados e com maiores detalhes que seriam chamados de *Objetivos do Desenvolvimento Sustentável* (ODS), que são referências empregadas para a comunidade global a serem executadas entre 2015-2030 (ONU, 2019b; SACHS, 2012). Os ODS, apresentam 17 Objetivos, 169 metas e 243 indicadores e são aplicáveis a países desenvolvidos e em desenvolvimento. Para isso, precisamos entender as condições ambientais necessárias que permitem o desenvolvimento humano, estabelecendo limites para o uso da biosfera (GRIGGS et al., 2013).

Um dos diferenciais dos ODS é a possibilidade de interligar diferentes aspectos de uma mesma '*consequência*', o qual foi evidenciado por Carter *et al.*(2018) que usou os

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indicadores da ODS I (Erradicação da Pobreza) para determinar a incidência de tuberculose em 192 países, evidenciando como resultado que acabar com a pobreza extrema diminuiu em 33,4% os casos de tuberculose e a expansão da proteção social em 76,1% até 2035, esses resultados se conectam às abordagens do ODS III (Saúde e bem-estar), que visa reduzir o número de mortos por doenças infectocontagiosas ou provenientes a acesso de informação e/ou condições financeiras. Dessa forma fica claro que os ODS podem atuar em diferentes escalas e influenciarem na adoção de medidas mitigadoras, principalmente agindo por intermédio de termômetro no que tange a sustentabilidade em um determinado espaço (CLUVER et al., 2019; OBERSTEINER et al., 2016).

2.4. Consequências da degradação

Parece que ao mesmo tempo em que o *H sapiens* se desenvolvia como espécie, o infortúnio também o seguia. Sofrendo aos poucos os *males* do mundo, tendo como '*esperança*' a busca de um lugar melhor, analogamente, seria a criação das sociedades nossa caixa de pandora e as doenças epidêmicas e infecciosas alguns dos nossos *males* e a *esperança* nossa capacidade de adquirir resistência a esses patógenos (DIAMOND, 2002; HARPER; ARMELAGOS, 2010; MCNEILL; MCNEILL, 1998).

Já foi elucidado que essas doenças não poderiam existir de forma epidêmica antes da agricultura e domesticação aliadas às aglomerações populacionais que essas habilidades trouxeram consigo (DIAMOND, 2002; WOLFE; DUNAVAN; DIAMOND, 2007). Além de doenças infectocontagiosas, o aumento no consumo de alimentos processados, carboidratos refinados, gorduras e carnes, contribuem para uma gama de doenças não transmissíveis que aflige os seres humanos (TILMAN; CLARK, 2014). As condições culturais e econômicas aproximam os seres humanos de patógenos (KEESING et al.,). Uma parte das doenças zoonóticas é resultante de mudanças no uso da terra, práticas agrícolas, produção de alimentos ou caça da vida selvagem (KEESING et al.,).

Por definição, doenças infectocontagiosas envolvem interações interespécies, com no mínimo um hospedeiro e um patógeno, e envolvem tanto espécies vegetais quanto animais (KEESING et al.,). As doenças infecciosas então podem ser consideradas consequências evolutivas da construção de nicho do ser humano, haja vista que essas doenças (*e.g.* varíola, tuberculose, SARS, hepatite B, peste, tifo, AIDS entre outras) são oriundas de animais (zoonóticas) muitos dos quais são domesticados pelo homem ou estão inseridos em nichos

ecológicos ou socioculturais destes (CHRISTAKI, 2015; HUMBLET et al., 2012; PAUL-PIERRE, 2009).

Acredita-se que 60,3% das doenças infecciosas emergentes são causadas por patógenos zoonóticos (JONES et al., 2008) e apresentam cinco estágios da evolução de um patógeno até a contaminação de humanos, sendo estes: (i) patógenos presentes somente em animais, que ainda não foram detectados em humanos em condições naturais; (ii) patógenos que são transmitidos para humanos, mas não foram disseminados intraespécie; (iii) patógenos que são propagados para o homem e apresentam um ciclo curto de transmissão intraespécie; (iv) patógenos que são transmitidos para pessoas durante o ciclo silvático, mas também sofrem longas sequências de transmissão entre humanos sem necessidade dos animais. A última categoria foi dividida em três subgrupos: (iv.a), onde o ciclo de transmissão entre animais e o ser humano é mais importante que a propagação interespécie; (iv.b),em que a transmissão silvática e a interespécie são importantes; (iv.c), no qual a maior disseminação é entre humanos; (v), os quais são patógenos exclusivos dos seres humanos (WOLFE; DUNAVAN; DIAMOND, 2007).

O ‘bem-estar humano’ se correlaciona positivamente com o ‘bem-estar da biodiversidade’, pois ambientes degradados falham em proporcionar serviços ecossistêmicos ideais para a manutenção da forma que conhecemos. Contudo, um maior ‘bem-estar humano’ provoca uma busca de recursos de provisionamento, que por sua vez, impactam negativamente outros três serviços ecossistêmicos (KEESING et al., ; WHITMEE et al., 2015). Por esse motivo, a biodiversidade pode desempenhar um duplo papel em relação ao surgimento e transmissão de doenças infecciosas, visto que uma elevada variedade biológica gera um maior potencial de patógenos, a contragosto, uma baixa variedade tende a aumentar essa transmissão e a incidência de mazelas (KEESING et al., 2010; WOLFE; DUNAVAN; DIAMOND, 2007).

A pressão antrópica nos últimos séculos, ocasionou o aparecimento de doenças zoonóticas que criaram contágios locais em diferentes níveis de letalidade. O SARS-CoV-2, ou simplesmente Covid-19, é um coronavírus de um total de 39 espécies conhecidas (GORBALENYA et al., 2020), sendo o vírus responsável pela maior epidemia registrada até o momento no século XXI (DECARO; LORUSSO, 2020; GORBALENYA et al., 2020). Atualmente, são sete os coronavírus humanos (HCoVs) descobertos juntamente com seus hospedeiros, sendo quatro (HCoV-299E, *alpacas*; HCoV-OC43, *gado*; HCoV-NL63, *morcegos*; HCoV-HKU1, *roedores*), que apresentam apenas problemas respiratórios leves; dois (SARS-CoV, *carnívoros selvagens* e MERS-CoV, *dromedários*) e apresentam maior

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virulência e mortalidade e um (SARS-CoV-2, *morcegos* e *roedores*) com uma taxa de letalidade mais baixa, contudo com uma alta taxa de contágio (GUARNER, 2020).

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“*Deixem os ladrões entrarem... Eles vão tentar levar tudo que puderem... E você vai ficar cansado... E também muito triste e vai caminhar por aí pensando em seus próprios passos... [...] daí, quando você tiver a certeza de que não possui mais nada e que até a sua própria dor não lhe pertence mais talvez em algum momento... Você se livre desses pensamentos e se sinta: Começando. Renascendo. Solitário.”*

O Nada – Cidadão Instigado

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4. ARTIGO

Revista a ser publicado: *Ecosystem Services*

SERVIÇOS ECOSSISTÊMICOS: HÁ EQUIDADE SOCIAL?

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Resumo: A abordagem antropocêntrica do meio ambiente criou diversas temáticas que visam preservá-lo, tendo como perspectiva a manutenção dos recursos naturais e de seus serviços úteis ao bem-estar do ser humano, sendo assim, serviços ecossistêmicos em seus diversos eixos surgiram com esse propósito. Utilizando o artesanato ceramista como modelo, buscamos entender como fatores socioeconômicos modulam a percepção socioambiental e utilização do espaço de comercialização no consumo destes bens. Nossos resultados demonstram que fatores como escolaridade, tempo de permanência no local de comercialização e percepção influenciam o consumo, bem como existem indicações de que a utilização desse serviço ecossistêmico não é acessível aos grupos mais vulneráveis socialmente. Com isso, entendemos que por mais que os serviços ecossistêmicos sejam disponíveis à população em geral, grande parte não consegue usufruí-los.

Palavras-chave: Serviço ecossistêmico cultural; Argila; Polo Ceramista; Fatores socioeconômico; Percepção socioambiental

Abstract: The anthropocentric approach to the environment has created several approaches that aim to preserve the environment, with the perspective of maintaining natural resources and their useful services for the well-being of human beings. Ecosystem services in their various axes suggest for this purpose. Using ceramic crafts as a model, we seek to understand how socioeconomic factors, socio-environmental perception and the use of commercial space influence the consumption of these goods. Our results demonstrate that factors such as education, length of stay at the place of sale and perception influence consumption, as well as there are indications that the use of this ecosystem service is not accessible to the most socially vulnerable groups. With this, we understand that even though socioeconomic services are available to the general population, a large part is unable to enjoy these services.

Keywords: Cultural ecosystem service; Clay; Ceramist Polo; Socioeconomic factors; Socio-environmental perception.

INTRODUÇÃO

A construção humana como espécie baseia-se na sua capacidade de alterar o ecossistema que o circunda (Albuquerque et al., 2018; McDaniel & Borton, 2002), o que representa uma ameaça real à biocenose (Brudler et al., 2019) e até à sua própria existência (Guo et al., 2010). Diferentes abordagens tentaram entender as relações homem-ambiente (Campos et al., 2018; Hockings et al., 2009), tal como as perspectivas de enquadramento do ser humano dentro desse sistema, onde podemos citar as abordagens antropocêntrica e ecocêntrica (Kortenkamp & Moore, 2001) como as mais comuns na sociedade atual.

Enquanto a visão antropocêntrica enaltece o indivíduo como centro do universo natural, enquadrando os outros elementos espaciais como secundários e totalmente à sua disposição, a visão ecocêntrica iguala o ser humano a qualquer outro elemento natural, fazendo com que o consumo seja repensado e ponderado (Kortenkamp & Moore, 2001; Washington et al., 2017). Diante disto, entendemos que a aquisição de cada abordagem influencia a forma como as sociedades interagem com o meio ambiente (Bourdeau, 2004; Kopnina et al., 2018).

Essa interação acarreta em mudanças ambientais cada vez mais acentuadas, assim, suas consequências passaram a ser observadas, ocasionando em demandas para a criação de políticas públicas ou linhas de pesquisas que visam mitigar ou elucidar as interações sociais e ambientais (Fisher et al., 2009; Washington et al., 2017). O termo '*serviços ecossistêmicos*' não é algo novo (ver Ehrlich & Mooney, 1983), contudo, foi o seu enquadramento a uma percepção mais antropocêntrica (Lehmann et al., 2018) durante a avaliação ecossistêmica do milênio, que relançou o termo ás pesquisas científicas (Assessment, 2005).

Os serviços ecossistêmicos são aqueles que a natureza fornece ao homem e são indispensáveis à sua sobrevivência, sendo classificados em: serviços de regulação (*e.g.*, disponibilidade de água, captação de carbono por espécies vegetais *etc.*); serviços de apoio (*e.g.*, formação de solos, ciclagem de nutrientes *etc.*); serviços de provisão (*e.g.*, produtos alimentícios, construção de abrigos *etc.*); serviços culturais (*e.g.*, recreação, turismo ecológico, apreciação estética *etc.*) (Assessment, 2005; Aylward et al., 2005).

De forma geral, os serviços ecossistêmicos podem ser compreendidos de forma individual (Ferraz et al., 2014) ou com as junções de mais de um serviço (Papanastasis et al., 2017), a fim de compreender determinado cenário. Todavia, estão à mercê do '*ser humano*', posto que apesar aparência redundante, somos cerca de 11 bilhões de indivíduos (ONU, 2019), que se organizam em sociedades com percepções e traços culturais distintos sobre o

uso destes serviços (M. C. G. Silva et al., 2019; Wadley & Colfer, 2004). Diversas variáveis (*i.e.*, crenças, leis, costumes, acessibilidade, condições socioeconômicas *etc.*), são necessárias para modelarmos os serviços ecossistêmicos.

O processo de criação de objetos de artesanato incorpora elementos da cultura da sociedade no qual faz parte, outrossim, é manual em grande parte ou com frações irrisórias de aparatos tecnológicos (Castilho et al., 2017), sendo utilizado como meio de subsistência por diversas comunidades mais vulneráveis (Martins & Gasalla, 2020; Mehra et al., 2019). O rudimentarismo se utiliza de uma vasta gama de recursos naturais para produzir objetos que ganham diferentes significados a depender da cultura em que estão inseridos, desta forma podemos enquadrar essa prática dentro dos serviços ecossistêmicos de provisão e culturais.

Associar a produção manual aos serviços ecossistêmicos culturais, está em aliar o valor cultural de uma sociedade em um bem material que pode ser transposto do seu local de origem a outros, carregando consigo o simbolismo daquela cultura. Além do bem gerado, que contém um valor monetário, o artesanato também pode estar inserido em um espaço com valor cultural (Castilho et al., 2017), os quais comumente são utilizados para demonstrar aspectos intangíveis de uma determinada cultura, podendo ser desde a presença de um ser ou entidade "animal ou vegetal" (Fernandes-Pinto & Irving, 2018; Wadley & Colfer, 2004), as danças (Hazzard-Gordon, 1983), técnicas do ofício (Fowler et al., 2012; Tung, 2012) entre outros. Esses atrativos, muitas vezes levam a um maior consumo dos produtos, uma vez que os visitantes entendem as dinâmicas sociais e ambientais locais.

O artesanato como serviço ecossistêmico de provisão, envolve a disponibilidade de recursos naturais a depender do produto desejado, tais como fibras (Silva & Rodrigues, 2017), argila (Cantalice & Alencar, 2019), madeira (Cantalice & Alencar, 2019; M. C. G. Silva et al., 2019), entre outros. De forma geral, cada item utilizado para a produção de um '*objeto*' impacta o ambiente de uma maneira específica e esse impacto acompanha o produto final, podendo influenciar o consumidor terminal tanto na aquisição deste como no valor econômico aceitável para determinado produto, o qual pode apresentar em seu valor econômico uma maior ligação com as condições sociais, econômicas e educacionais dos consumidores (Yu & Littrell, 2005).

Embora os serviços ecossistêmicos possam se apresentar da forma mais ampla e passível de serem acessados por todos, acreditamos que os aspectos socioeconômicos e a percepção de impacto ambiental os influenciam. Diante disso, apresentamos as seguintes hipóteses: H1: O tempo de permanência e a frequência de visitas afeta o consumo do artesanato; H2: Fatores socioeconômicos interferem no consumo do artesanato; H3: A

percepção dos visitantes acerca dos impactos socioambientais gerados pelo ofício ceramista influencia o consumo do artesanato.

MATERIAL E MÉTODOS

Área de Estudo

O Polo Cerâmico do Poti Velho, está localizado no bairro Poti Velho, no município de Teresina, Piauí (5°2'11,31"S. 42°49'51.18"W), que apresenta cerca de 1765,18 km² de extensão e conta com aproximadamente 814.230 habitantes, os quais 94,27% residem na área urbana (IBGE, 2016). É válido ressaltar que, embora tenha um IDH considerado alto (0,751), as condições populacionais não são homogêneas em toda a região, cenário esse encontrado dentro da área de estudo.

O Polo Cerâmico foi fundado em 2004, destinado à venda do artesanato local, formulado à base de cerâmica vermelha. Atualmente, conta com 30 boxes funcionais que apresentam um ou mais segmentos do artesanato ceramista (Cantalice & Alencar, 2019), esses abrem de segunda a segunda das 8 às 18 horas, contudo, não existe uma regulamentação de horários, podendo cada box abrir um pouco mais cedo, por volta 7h, e fechar por volta de 20 h, horários em que ainda pode ocorrer movimentação.

De acordo com as observações da Acerpoti (Associação dos Artesãos em Cerâmica do Bairro Poti Velho) e a Cooperart-Poty (Cooperativa de Artesanato do Poty Velho), o número de visitantes por mês varia entre 2000 a 5000, essas variações são oriundas dos meses de pico (novembro-dezembro; junho-julho) seguidos por meses considerados de baixa ou normalidade nas vendas. Não existe um limite dos valores comercializados, porém, a Cooperart-Poty (Cooperativa de Artesanato do Poty Velho) e a Acerpoti (Associação dos Artesãos em Cerâmica do Bairro Poti Velho) afirmam que os visitantes podem encontrar peça de R$ 2,00 (*e.g.*, miniatura de joaninhas) a mais de R$ 5.000,00 (*e.g.*, presépios natalinos), contudo, eles afirmam que a média das peças comercializadas seja entre R$ 50,00 e R$75,00.

Procedimentos éticos e legais

Em sintonia com os critérios éticos apresentados na Resolução nº 466/12 do Conselho Nacional de Saúde (CNS), a pesquisa foi submetida ao Comitê de Ética em Pesquisa (CEP) da Universidade Federal do Piauí (UFPI), sendo o trabalho aprovado e consubstanciado sob o número 41964821.1.0000.5214 (CAAE). Os visitantes que participaram do estudo eram

maiores de 18 anos e após explicação e aceite dos objetivos e procedimentos do estudo, deveriam assinar o Termo de Consentimento Livre e Esclarecido (TCLE).

Coleta de dados

Os dados foram coletados de maneira aleatória nos sete dias da semana, bem como em diferentes turnos (manhã e tarde) e horários, de forma não consecutivas entre os meses de dezembro de 2019 a março de 2020. Os participantes da pesquisa foram selecionados a partir de amostragem intencional (Gil, 2008) sob os seguintes critérios: ter no mínimo 18 anos e não trabalhar dentro da comunidade. O tamanho da amostra foi calculado pela equação $n = N (1 / E_0^2) / N + (1 / E_0^2)$, onde: n é o número de elementos da amostra; N é o número de elementos da população; e E_0^2 é o erro amostral (9%), dentro de um nível de confiança de 95% (Barbetta, 2008).

Realizamos entrevistas semiestruturadas (Fetterman, 2009), para proceder com a coleta dos dados, feita em duas etapas consecutivas. Primeiramente, foram coletadas informações acerca dos fatores socioeconômicos dos visitantes do polo cerâmico, tais como gênero, idade, escolaridade e renda. Posteriormente, recolhemos informações sobre os hábitos e escolhas dos visitantes: relação com o polo cerâmico (frequência, tempo de permanência e consumo); percepção dos impactos socioambientais (existência de aspectos negativos/positivos, e quantificação dos mesmos) e conhecimento do ofício (conhecimento de suas etapas). Para determinar o conhecimento, pediu-se que os informantes citassem as etapas da produção ceramista.

Análise de Dados

As variáveis foram coletadas sempre que possível, de forma contínua, podendo ser agrupadas ou não de acordo com as análises ou escolha da explicitação dos dados. Os dados de conhecimento coletados foram enquadrados em uma escala Likert de intensidade 5. Para isso, as respostas foram agrupadas em 10 grupos, que seriam as etapas básicas da produção ceramista (ver Cantalice & Alencar, 2019). Com esse agrupamento, a cada duas respostas corretas acerca do processo, o entrevistado subia um ponto na escala Likert e assim subsequentemente, determinado um valor de conhecimento dentro da escala Likert para cada informante.

Após a organização dos dados, utilizou-se de estatística descritiva ou por meio de proporções para retratar o público estudado. Com a construção do Modelo Linear Generalizado (GLM), ferramenta que determina a relação entre o consumo e os fatores socioeconômicos, além da relação com o polo cerâmico e percepção de impactos

socioambientais causadas pelo ofício, verificamos a correlação entre as variáveis utilizando a *função* '*cor*' do *package* '*corrplot*' (Wei et al., 2017), a exclusão da variável no modelo ocorreria, caso o valor encontrado estivesse entre 0.8 e 1.0 (correlação alta),podendo este valor ser negativo ou positivo.

O modelo inicialmente se deu utilizando a distribuição de Poisson *função* '*lm*' e *family* 'poisson' do |R, e após detecção de uma *overdispersion*, optou-se por distribuição binomial negativa, sendo empregado com a *função* '*glm.nb*' com o *package* '*MASS*' (Ripley et al., 2020). Os modelos gerados foram posteriormente selecionados com base no critério de informação de Akaike, com correção (AICc) , *função* '*ICtab*' com o *package* '*bbmle*' e *type* 'AICc' (Ripley et al., 2020; Symonds & Moussalli, 2011). Para determinar a explicação do modelo, adotamos o *adjusted* D^2*, com auxílio da função 'ecospat.adj.D2.glm' com o package 'ecospat'* (Guisan & Zimmermann, 2000).

Ademais, verificamos se existe relação entre o consumo e uma maior percepção dos impactos positivos, onde, a princípio, construiu-se uma nova função 'aov' do |R seguindo os pressupostos de normalidade, com a *função* '*shapiro.test*' do |R e homocedasticidade, usando a *função* '*leveneTest*' do *package* '*car*' (Fox et al., 2016), foram testados com resíduos da regressão (Zuur et al., 2010). Por não seguir os pressupostos partimos para uma análise não-paramétrica (Kruskal-Wallis), onde usamos a *função* '*kruskal.test*' do |R.

RESULTADOS

Perfil dos entrevistados

Das 121 pessoas entrevistadas, 77 (63,64%) foram mulheres e 44 (36,36%) homens, com idade que variam entre 18 a 81 anos (42,7 ± 14,1). A escolaridade dos visitantes foi em sua grande maioria elevada e grande parte com formação superior, ademais, não houve observação de visitantes com uma escolaridade menor que o ensino médio (Tabela 1). A frequência de visita dos entrevistados ao polo variou de 1 a 48 (3,62 ± 5,43) visitas/ano. Essas visitas têm duração que varia de 15 a 360 (50,33 ± 38,24) minutos. E tem como consumo por visita valores que variam de R$ 30,00 a R$ 400,00 (93,64 ± 71,63), onde destacamos que a renda dos entrevistados em sua maioria é maior que um salário mínimo, ou seja, R$ 1.045,00 (USD 5.705,70; R$ 1,00 ≡ USD 5,46) (Tabela 1)

		N	***%***
Escolaridade	Ensino médio	38	31,40
	Superior	64	52,90
	Pós-Graduação	19	15,70

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Renda	R$ 0,00 a 1.045,00	21	17,36
	R$ 1.045,00 a 3.135,00	37	30,58
	R$ 3.136,00 a 5.225,00	18	14,88
	Acima de R$ 5.226,00	45	37,20

Tabela 1 - Escolaridade e renda dos entrevistados e sua distribuição em números absolutos e porcentagem.

Consumo de artesanato

Os nossos resultados demonstraram que o consumo de artesanato no Polo Cerâmico tem como variáveis preditoras o tempo de permanência dos visitantes, a renda e a escolaridade (Tabela 2) , as quais modularam o consumo de artesanato por visitantes. As demais variáveis verificadas não apresentaram relação significativa com o consumo. De forma geral, o modelo apresentou um AIC de 1271.3 e um D^2 *adjusted* de 20.95%, sendo composto pela relação entre gasto e as variáveis preditoras: renda, tempo, aspectos negativos e aspectos positivos.

	Estimate	***Std. Error***	***z value***	***Valor de p***
Intercept	3.885290	0.161854	24.005	< 2e-16 ***
Escolaridade Pós-Graduação	0.518596	0.156311	3.318	0.000908 ***
Escolaridade Superior	0.082927	0.115780	0.716	0.47841
Tempo	0.005150	0.001333	3.862	0.000112 ***
Asp. Negativos Não sei	0.098808	0.124637	0.793	0.427914
Asp. Negativos Sim	-0.528285	0.159881	-3.304	0.000952 ***
Asp. Positivos Não sei	0.302247	0.220544	1.370	0.170543
Asp. Positivo Sim	0.386973	0.119636	3.235	0.001218 **

Table 2 - Resultado do GLM que explique como os dados socioeconômicos, tempo de permanência no local de comercialização e percepção influenciam o consumo.

Quando analisamos a relação entre a percepção de impactos socioambientais dos visitantes do Polo Cerâmico e vinculamos ao consumo de artesanato, detectamos que visitantes que relataram reconhecer aspectos negativos na produção consumiram menos produtos, ou seja, uma diminuição do consumo (Tabela 2). O inverso também é verdadeiro, pois os impactos positivos impulsionaram o consumo de artesanato (Tabela 2).

A percepção de impactos pelos entrevistados foi que 63 (52.07%) destes relataram que a produção do artesanato não apresenta impactos ambientais, seguido por 43 (35.54%) que não sabia opinar e 15 (12.39%) que diziam observar esses efeitos negativos. A percepção de resultados positivos se mostrou mais evidente, uma vez que somente 9 (7.44%) relataram não existir esse tipo efeito na produção artesanal local, seguidos por 41 (33.88%) que não sabia opinar sobre a existência destes impactos e 71 (58.68%) que relataram existir impactos positivos na produção.

Quando quantificamos os impactos tanto negativos quanto positivos ,observamos que as 15 pessoas que relataram observar consequências negativas só citaram um impacto, enquanto as que observaram impactos positivos (n=71) citaram de 1 a 4 (1.83 ± 1.03), sendo 36 (50.70%), 19 (26.76%), 8 (11.27%) e 8 (11.27%) para 1, 2, 3 e 4 impactos respectivamente. Quando agrupamos esses efeitos positivos e verificamos se existe alguma relação entre a quantidade de recursos e os valores gastos (χ^2 = 7.1264; df = 4; p value = 0.1294), percebemos que independentemente da quantidade de impactos citados isso não se reflete no consumo dos visitantes

DISCUSSÃO

O acesso aos serviços ecossistêmicos, em sua concepção, é visto como um bem público acessível a todos os seres humanos (MA, 2005), contudo, na prática, o acesso a esses serviços sofre variações socioeconômicas (Corbera et al., 2007). Nossos resultados demonstram que a escolaridade influenciou de forma positiva o consumo dos visitantes, uma vez que a maioria deles possuíam o maior nível de escolarização. Esse fenômeno pode ser explicado pela teoria do capital humano (Zhou et al., 2020). Para Zhang & He (2007), a qual profere que com o aumento da educação o rendimento mensal tende a ser maior, o que leva as pessoas a não se preocuparem tanto com a compra de itens de subsistência e passe a consumir itens de recreação, culturais e ou espirituais.

Mesmo que os outros níveis de escolarização não tenham se apresentados significativos, a ausência de entrevistados não escolarizados ou com ensino fundamental corrobora com a ideia central de que uma maior escolaridade cria de forma indireta consumidores de produtos culturais (Zhang & He, 2007). Seguindo o mesmo pensamento, observamos que o rendimento mensal também não se mostrou significativo, porém, o cenário econômico geral dos entrevistados não condiz com a realidade média brasileira, que seria R$ 1.373,00 (IBGE, 2018), com um destaque para o fato de que cerca de 50% deles detêm uma renda média de três salários mínimos (R$ 3.135,00) ou mais, evidenciando que uma maior renda representa um maior consumo de bens de luxo (Diniz & Machado, 2011).

A resposta positiva dos nossos resultados sobre a permanência, pois quanto maior ela se dá, ocorre aumento do consumo, representa um resultado intuitivo, contudo, evidencia que essa variável é também significativa, uma vez que os estudos focam em grandes períodos (dias ou semanas) de permanência nos pontos turísticos (Alegre & Pou, 2006; Barros & Machado, 2010). Diferente de outros pontos turísticos o local de estudo não apresenta outros atrativos, tais como: área de alimentação, espaços verdes, espaços para informação sobre o ofício, entre outros, o que nos leva a crer que a permanência pode estar aliada à grande

quantidade de escolhas presentes no local (Cantalice & Alencar, 2019) e que a inserção de outras atividades poderia acarretar em um maior consumo do artesanato.

A busca de um estilo de vida socialmente justo e ambientalmente sustentável é um movimento que a cada dia vem ganhando mais adeptos e lugares de fala (Coelho, 2015; Haenfler et al., 2012; Santhi & Rubeya, 2018). Observando o valor absoluto, fica evidente uma melhor percepção de impactos positivos, isso pode se dar pela falta de conhecimento dos impactos negativos do ofício ceramista, principalmente a argila (Abrahao & Carvalho, 2018) que é a base do artesanato local.

Essa mesma percepção negativa, se mostrou relevante no consumo por parte dos entrevistados, cuja reação está em sintonia com outros trabalhos (Jobstvogt et al., 2014; Rewitzer et al., 2017; Robinson et al., 2016). Um fator importante nos resultados foi o entendimento de que uma maior percepção dos impactos não acarretaria em maiores aquisições, o que nos leva a acreditar que é necessária uma implementação de métodos de educação ambiental e social que permitam aos visitantes entender melhor o ofício e seus impactos.

CONCLUSÃO

Nosso estudo evidencia a elitização ao artesanato ceramista, aqui entendido como um serviço ecossistêmico cultural. Esse efeito enfatiza que a distribuição de escolaridade não se faz de maneira igualitária proporcionando assim grandes diferenças salariais, que por fim implicam na possibilidade de adquirir produtos culturais. Outro ponto, é a pressão indireta que a criação de uma sociedade mais justa e ambientalmente sustentável tem sobre ofícios artesanais, que deve se adequar a esse novo cenário para que posso manter sua comercialização.

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"Você deve aproveitar os pequenos desvios ao máximo. Porque é onde você vai encontrar as coisas mais importantes do que as você quer."

Ging Freecss – Hunter x Hunter

‘

5. ARTIGO

Revista a ser publicado: *Sustainability*

SUSTENTABILIDADE AMBIENTAL: A CULTURA COMO MEIO DE SALVAGUARDAR OS RECURSOS NATURAIS. ESTUDO DE CASO EM UM POLO CERAMISTA ARTESANAL

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Resumo: O artesanato é uma das formas de materialização cultural mais difundida em todo o mundo, atuando como fonte de geração de renda e inclusão social para populações vulneráveis. De um modo geral, o processo está intimamente ligado à utilização de recursos naturais, provocando por diversas vezes a exploração excessiva destes. Visto isso, e reconhecendo importância das políticas públicas na promoção da conservação dos recursos naturais, pretendemos avaliar nesse estudo a contribuição do ofício do artesanato ceramista no cumprimento dos objetivos de desenvolvimento sustentável (ODS) proposto pela Organização das Nações Unidas (ONU). Para isso, o presente trabalho utilizou como modelo o polo ceramista localizado da cidade de Teresina e se concentrou no impacto da atividade ceramista sob as condições econômicas, sociais e ambientais. Além disso, pretendeu-se entender como: (a) produto; (b) processo de produção; inovação organizacional se estruturam na atividade ceramista e como auxiliam na busca de um processo ecologicamente sustentável. A pesquisa foi realizada por intermédio da técnica de observação participante e conversas informais, na qual todas as etapas da cadeia produtiva foram monitoradas. A cadeia produtiva apresentou etapas obrigatórias e opcionais, sendo estas encaradas como etapas que permitem um maior lucro agregado ao artesanato. Os impactos ambientais são mitigados de maneira superficial, justificados pela falta de condição econômica para a atuação das mesmas. Em sua maioria, os ODS não apresentam indicadores que possam ser utilizados no ofício, contudo, quando aplicados, demonstram que existe um amplo espaço para melhoria do desenvolvimento sustentável.
Palavras-chave: Artesanato; Objetivos do desenvolvimento sustentável; Polo Cerâmico do Poti Velho; Argila vermelha; Artes e ofícios.

Abstract: Craftsmanship is one of the most widespread forms of cultural materialization worldwide, acting as a source of income generation and social inclusion for vulnerable populations. In general, artisanal production is closely linked to the use of natural resources, causing their excessive exploitation several times. Given this and recognizing the importance of public policies in promoting the conservation of natural resources, we intend to evaluate

this study, the contribution of the craft of ceramic crafts are in compliance with the objectives of sustainable development (SDG) proposed by the United Nations (UN). For this, the present work uses as a model the ceramic pole located in the city of Teresina and focuses on the impact of the ceramic activity, under social and environmental conditions. In addition, it was intended to understand how: (a) product; (b) production process; and organizational innovation are structured in the ceramic activity and how they help the search for an ecologically sustainable process. A survey was carried out through the technique of participant observation and informal conversations, where all stages of the production chain were monitored. A production chain with mandatory and optional steps, the latter being seen as steps that allow greater added value to handicrafts. Environmental impacts are mitigated superficially, justified by the lack of economic conditions for their application. Most of the SDGs do not have indicators, which will be used in the trade, when necessary, when necessary, demonstrate that there is ample space for improving sustainable development.
Keywords: Crafts; Sustainable development goals; Poti Velho Ceramic Pole; Red clay; Arts and crafts

INTRODUÇÃO

Entender as causas e encontrar soluções, bem como maneiras de mitigar ou extinguir os problemas ambientais, são as maiores preocupações do final do século XX e começo do século XXI. Pesquisadores tem feito um esforço comum (conferências, congressos, acordos climáticos entre outros) em pensar como reagir às implicações desses problemas em escalas macro, tais como países, continentes entre outros [1]. Contudo há um impasse na aplicação de políticas públicas que visam o desenvolvimento sustentável em pequenos grupos sociais, devido à dificuldade de adaptação destas ao contexto social local [2,3].

Nesse cenário, o Brasil se faz como um dos países mais difíceis de se adequar à realidade, haja vista a sua pluralidade cultural imensurável, proveniente das diferentes populações, o que coloca o território entre aqueles que detêm um vasto Patrimônio Cultural Imaterial, representado pelo conjunto de práticas, representações, expressões, conhecimentos e competências, tal qual instrumentos, objetos, artefatos e espaços culturais associados a um grupo social específico [4]. O artesanato é provavelmente de uma das melhores representações tangíveis de crenças, são mitos que compõem o *patrimônio intangível* destes grupos sociais.

O conceito de artesanato consiste em uma atividade individual ou coletiva, (pequenos grupos) na qual os objetos produzidos são cunhados de forma manual , tradicional ou rústica, com pouca ou nenhuma interação de processos industrializados [5]. Além disso, a produção manual pode ser encarada por sua capacidade em gerar renda e inclusão social, onde os artesãos utilizam recursos naturais para confecção de suas peças, provocando baixos

impactos e utilizando do seu repertório cultural para atenuar as desigualdades sociais e promover a sua inserção social [6,7].

A prática do artesanato está ligada intimamente com o uso de recursos naturais, podendo ser de origem animal [8], vegetal [9], cerâmica [10,11], entre outras. A utilização de recursos naturais para atividades humanas sempre levantará a incógnita possibilidade de extinção local dos mesmos, caso não sejam monitorados. O impacto ambiental que a prática do ofício do artesanato, praticado em pequenas empresas familiares ou grupos associados, gera é diversas vezes menor que a de grandes empresas, tal como empreendimentos de produção de produtos cerâmicos para a construção civil e de artesanato em cerâmica. A junção de pequenas empresas pode gerar um impacto ambiental considerável [12,13], contudo, diferente de outras intervenções humanas no ambiente o artesanato representa também a cultura daquela população.

Com o declínio do mercado de produtos artesanais pós industrialização, esses passaram a ter seus espaços consumidos por produtos produzidos em larga escala, forçando os artesãos a buscarem novas formas de renda e seus conhecimentos e tradições passaram a ser repassados com uma menor frequência para as gerações futuras [6,14]. Aos poucos, esse cenário vem sendo modificado, o que resultou na formação do Polo Cerâmico do Poti Velho, que representa um dos maiores complexos de produção artesanal ceramista do estado do Piauí, além de um centro de atração turística.

O presente trabalho pretende se concentrar no impacto da atividade ceramista, assim como a maneira como as condições econômica, social e ambiental se apresentam nesse ofício, utilizando para isso o (a) produto; (b) processo de produção, para testar as seguintes hipóteses: H1 A cadeia produtiva e afetada por fatores internos e externos a ela; H2 Os objetivos do desenvolvimento sustentável seguidos no polo cerâmico ainda são deficitários.

MATERIAL E MÉTODOS

Área de Trabalho

O presente trabalho foi realizado no Polo Cerâmico do Poti Velho localizado no município de Teresina, Piauí. Este apresenta dois espaços em que diferentes processos são realizados. O primeiro é localizado no bairro Olarias (5°2'30,55”S. 42°50'17,51”W), onde acontece a extração da argila e o segundo no bairro Poti Velho (5°2'11,31"S. 42°49'51.18"W), onde ocorre a produção e comercialização das peças nas 30 oficinas

presentes no local. Ambos pontos estão situados na área urbana do município de Teresina, Piauí.

Teresina apresenta cerca de 1765,18 km² de extensão e conta com aproximadamente 814.230 habitantes, destes, 94,27% residem na área urbana [15]. Embora tenha um IDH de 0.751, considerado alto [15], as condições populacionais não são homogêneas em toda a região, cenário esse encontrado dentro da área de estudo. Embora os bairros sejam adjacentes (Figura 1), diversos fatores socioambientais são constados entre os mesmos. Diferenças no número de habitantes (3.730 hab. Poti Velho e 1.561 hab. Olarias), a média de renda por domicílio, que no Poti Velho é R$1.020,00, tem uma grande queda no bairro vizinho, que por sua vez apresenta um rendimento médio de R$ 622,00 por domicílio, embora os valores sejam inferiores à média do município de Teresina, que é de R$ 1.110,00, a diferença de 39% entre os bairros é considerável [16,17].

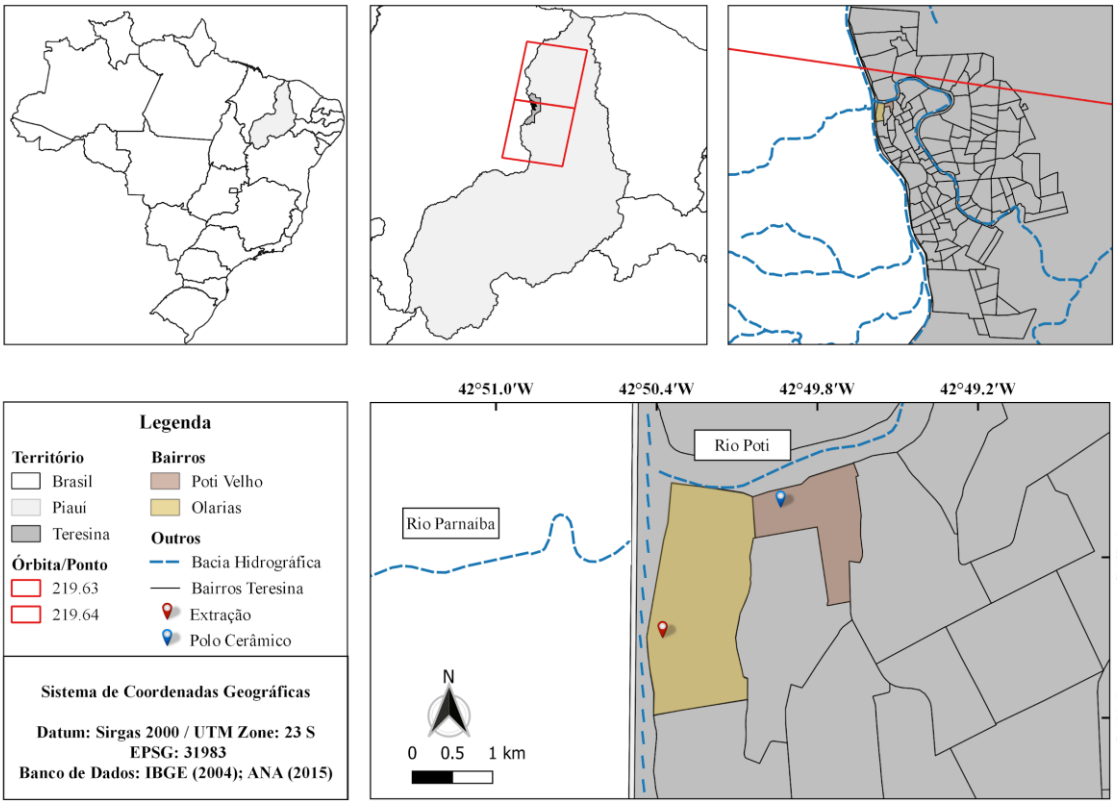

Figura 1: Área de Estudo: Zona Centro-Norte do município de Teresina/Piauí, destacando-se os bairros Olarias, Poti Velho e o Polo Cerâmico

Enquanto o bairro Olarias se constitui como um bairro de menor adensamento populacional (15,5 hab./ha), que pode ser explicado pela existência de resquícios florestais, bem como estar suscetível a enchentes, por sua condição geográfica, o Poti Velho apresenta características apostas (100,8 hab./ha) e não é suscetível a alagamentos, fazendo com que

diferenças sociais, ambientais e de oportunidade sejam distintas em cada bairro [17]. A nível de município, o clima da região é quente e úmido (Aw'), de acordo com a classificação climática de Köppen, com temperatura média anual acima de 26 °C e precipitação entre 1300 mm e 1600 mm [18]. A composição florística está inserida em uma zona de ecótono entre Cerrado (Savana neotropical) e Caatinga (vegetação decídua, espinhosa e seca) [19].

Coleta de Dados

Os dados foram coletados em momentos distintos entre os meses de agosto e outubro de 2019, por intermédio da técnica de observação participante e conversas informais sem a utilização de questionários [20,21]. Todas as etapas da cadeia produtiva foram acompanhas desde o processo de extração à venda dos produtos cerâmicos, a fim de identificar a cadeia produtiva total, os recursos utilizados e os impactos provenientes do ofício. Para determinar a aplicação dos 17 Objetivos do Desenvolvimento Sustentável (ODS) no Polo Cerâmico, utilizou-se os 243 indicadores das 169 metas para o alcance dos ODS [22]. A aplicabilidade dos indicadores foi verificada sempre que possível e se enquadra no local, gerando quatro categorias: (a) não se aplica; (b) preocupante; (c) regular; (d) bom.

A categoria "não se aplica", serviu para enquadrar indicadores que não coincidiam com a situação do local, por exemplo, o indicador 14.2.1 Proporção de zonas econômicas exclusivas nacionais gerenciadas usando abordagens baseadas em ecossistemas, ou para situações que estão relacionadas diretamente a instituições públicas e precisaria de informações pessoais dos artesãos, isto é, Indicador 3.3.3: Incidência de malária por 1.000 habitantes. Enquanto as categorias preocupante, regular e bom foram construídas de forma similar a uma escala Likert de cinco pontos, onde consideramos o nível de execução de cada meta com a realidade local [23].

Análise de dados

Os resultados numéricos foram analisados de forma descrita (média, porcentagem, desvio padrão entre outros) sempre que necessário, para expor a realidade da comunidade. Os demais dados foram analisados de forma descritiva e agrupados de acordo com a ODS com maior proximidade.

RESULTADOS

Cadeia de produção

Mesmo com todas as 30 oficinas apresentando independência nas etapas na cadeia de produção, poucas mudanças foram observadas nos procedimentos realizados desde o beneficiamento da argila ao chegar nos galpões de produção. O processo é constituído de nove etapas obrigatórias: (a) Extração: retirada da argila das jazidas; Transporte I (b): transporte as centrais de beneficiamento; (c) Beneficiamento I: adição de produtos para melhorar a qualidade da argila; (d) Transporte II: transporte a uma das 30 oficinas; (e) Modelagem: construção das peças em cerâmica; (f) Secagem: processo de retirada de água das peças; (g) Acabamento I: processo de retoque ou melhorias estéticas na peça; (h) Queima: cozimento das peças; (i) Venda: comercialização do produto (Figura 2).

Além dos processos obrigatórios, ainda foram observados três processos opcionais: (a) Beneficiamento II: consiste na reaplicação do beneficiamento I, contudo esse é feito já nos galpões e tido como uma checagem do beneficiamento já realizado, só que em quantidades menores, (b) Acabamento II: processo de retoque das peças, nesse ponto as mesmas podem sofrer tratamentos, afim de deixar sua superfície menos áspera, (c) Pintura: inserção de pigmentos na peça, visando o aumento do seu valor agregado ou melhor representação do aspecto cultural da peça (Figura 2). Para maior detalhamento dessas etapas, ver Cantalice & Alencar [11].

Em suma, a produção no Polo Cerâmico, embora apresente a inserção de tecnologia, as mesmas são rudimentares, por exemplo , o transporte das matérias primas, em especial a argila, ainda é feito à tração animal e os fornos ainda são à base de lenha (com exceção de uma oficina, onde se utiliza gás de cozinha, ou seja, gás liquefeito de petróleo), ademais, as adaptações tecnológicas para os processos são observadas nas etapas de beneficiamento, modelagem, pintura (em duas oficinas, onde se utiliza pistolas de ar comprimido para pintura) e nos processos de venda (inserção de máquinas para pagamento via adquirentes).

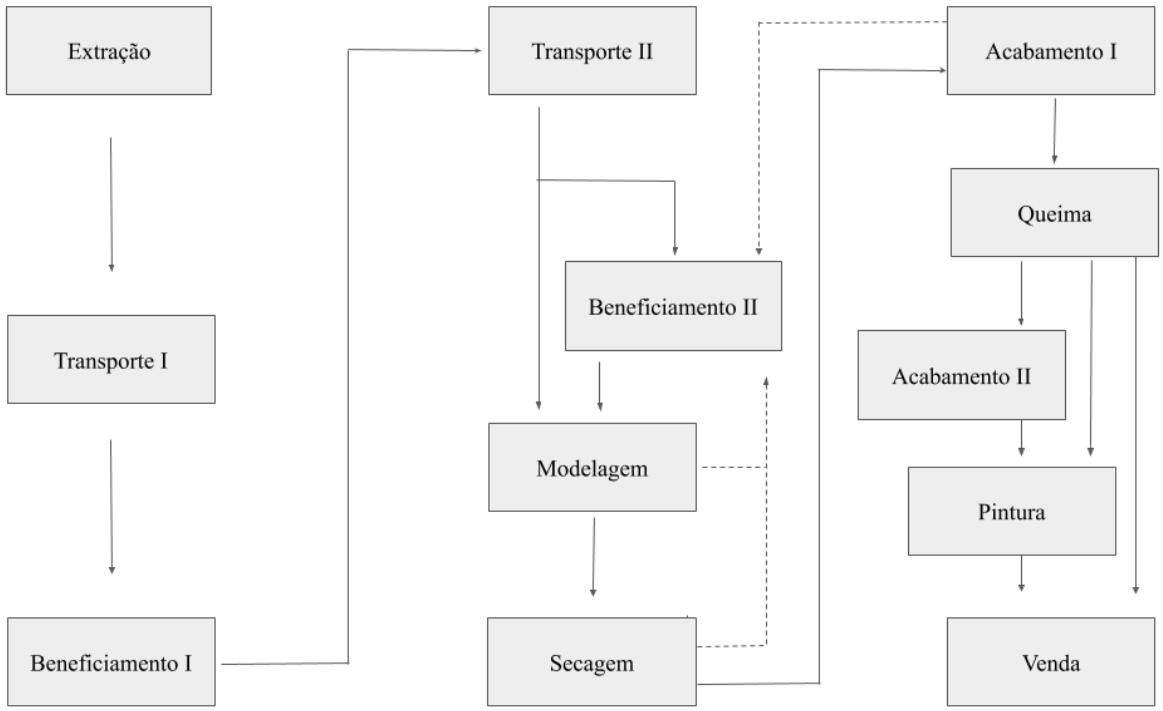

Figura 2: Fluxograma simplificado da cadeia de produção do Polo Cerâmico do Poti Velho, Teresina, Piauí. Linhas pontilhadas, representam etapas de reinserção da argila no processo novamente. Fonte: Autores.

Impactos ambientais

Como descrito, a similaridade das etapas nas oficinas do Polo Cerâmico faz com que os tipos de impactos ambientais provocados pelo ofício sejam semelhantes entre si, uma vez, que nenhuma medida mitigadora dos impactos descritos na Tabela 1, foram observados. Assim, podemos considerar que a distinção do impacto ambiental em cada oficina está em sua quantidade, de modo que existem diferenças entre o número de peças produzidas e as etapas opcionais inseridas.

Etapa	Recursos	Impactos Ambientais
Extração	- Humano; - Pás, enxadas, baldes, carrinho de mão, bomba periférica; - Combustível fóssil (Diesel); - Naturais (Argila);	- Desmatamento; - Erosão; - Emissão de gases (CO_2) e material particulado; - Resíduos de solo (camadas de solo antes da argila);
Transporte I	- Humano; - Carroça (Tração animal);	
Beneficiamento I	- Humano; - Naturais (argila e areia); - Prensa; - Eletricidade;	- Resíduos de materiais (argila e areia); - Efluentes do processo (água com sedimentos);
Transporte II	- Humano;	

	- Carroça (Tração animal);	
Beneficiamento II	- Humano; - Prensa; - Eletricidade;	- * Resíduos de massa (argila); - Efluentes do processo (água com sedimentos);
Modelagem	- Humana; - Eletricidade; - Espátulas, esponja, linha de nylon; - Naturais (água);	- * Resíduos de massa (argila); - Efluentes do processo (água com sedimentos);
Secagem	- Humano;	
Acabamento I	- Humano; - Eletricidade; - Espátulas, esponja; - Naturais (água);	- * Resíduos de massa (argila); - Efluentes do processo (água com sedimentos);
Queima	- Humano; - Naturais (Lenha); - Gás liquefeito de petróleo (GLP)	- Emissão de CO_2; - Resíduos da queima (cinzas e fuligem); -Resíduos sólidos (peças quebradas durante o processo); - Calor;
Acabamento II	- Humano; - Lixa; - Naturais (água); - Espátula; - Massa corrida;	- Resíduos sólidos (partículas de cerâmica e massa corrida);
Pintura	- Humano; - Eletricidade; - Naturais (água); - Tintas;	- Efluentes do processo (água com tinta); - Emissão de gases (tinta) - Embalagens de tintas (plástico e metais);
Venda	- Humano; - Eletricidade; - Jornais, papelão, fitas	- Resíduos sólidos;

Tabela 1: Recursos e Impactos ambientais nas etapas da produção ceramista, no Polo Cerâmico do Poti Velho, Teresina - * Os resíduos de massa (argila) considerados a partir do beneficiamento II, devem ser considerados a mistura de argila e areia que ocorre no beneficiamento I.

Objetivos do Desenvolvimento Sustentável (ODS)

De forma geral, as metas das ODS no ofício do artesanato no Polo Cerâmico, ficaram distribuídas da seguinte forma: Não se aplica (n = 131; 53,91%), Regular (n = 42; 17,28%), Preocupante (n = 36; 14,81%) e Bom (n = 34; 13, 99%). Nas conversas com os artesãos, não foi identificado que estes possuíam conhecimento das ODS, para mais, notou-se a existência de uma consciência ambiental, embora a mesma fique em segunda opção em predileção a uma melhor condição social. O cenário atual dos objetivos alcançados pelo Polo Cerâmico do Poti Velho (Figura 3).

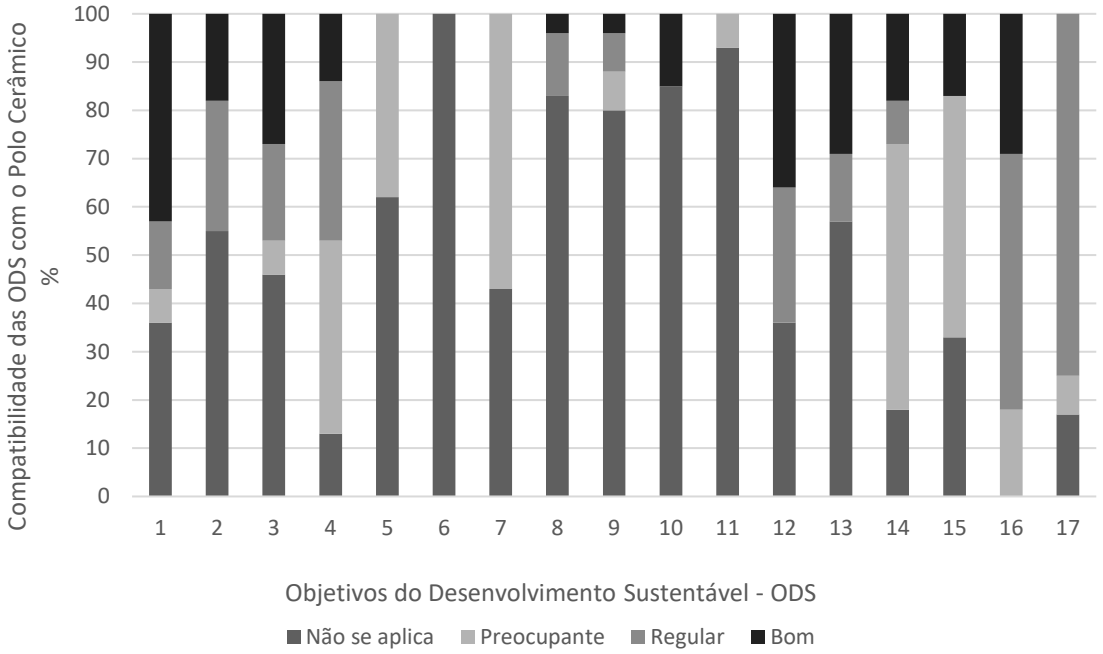

Figura 3: Metas dos Objetivos do Desenvolvimento Sustentável e sua compatibilidade e execução no Polo Cerâmico do Poti velho, PI.

Dentre as metas que constituem os ODS, citamos – Fome Zero (85%); ODS.3 – Boa Saúde (93%); ODS.14 – Vida de baixo d'agua (100%); ODS.16 – Paz, justiça e instituições fortes (83%) e ODS.17 – Parcerias em prol de Meta (80%), que apresentam uma menor compatibilidade no ofício. De forma geral, estes objetivos não apresentam nenhuma ligação com o ofício, como o ODS.14 ou são bastante ligados a políticas públicas sociais muitos amplas, e sua aplicação e sua percepção em comunidades locais requer um amplo esforço.

Dentre os ODS que apresentam uma ligação maior com o ofício, não se destaca nenhum com grande categoria Bom, embora quando aliadas a Regular se mostram que as metas dos ODS.1 – Erradicação da pobreza (43% e 14%); ODS.4 – Educação de qualidade (36% e 28%) e ODS.5 – Igualdade de gênero (29% e 14%), ODS.8 – Emprego digno e crescimento econômico (29% e 53%), ODS.10 – Redução das desigualdades (18% e 27%), ODS.11 – Cidades e comunidades sustentáveis (27% e 20%) são bem implementas no Polo Cerâmico.

Na categoria regular, podemos citar o ODS.9 – Industria inovação e infraestrutura (75%). Já os ODS que foram categorizados como preocupantes são os ODS.6 – Água limpa e saneamento (55%); ODS.7 – Energia acessível e limpa (50%); ODS.12 – Consumo e produção responsável (40%); ODS.13 – Combate e alterações climáticas (38%); ODS.15 – Vida sobre a terra (57%). Os ODS.

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DISCUSSÃO

Cadeia de produção

A cadeia produtiva apresentada no Polo Cerâmico se mostra adaptável no que tange às mudanças internas, ou seja, implementações de projetos apresentados pelos artesãos, treinamento ou capacitação para as diferentes etapas da cadeia de produção [10,24], em virtude das oficinas apresentarem as mesmas etapas de produção, embora sejam independentes entre si. As mudanças externas, aquelas que são induzidas por clientes, padrões sociais, universidades, instituições públicas, entre outras [24,25], aparentam guiar mais fortemente as mudanças na cadeia de produção.

Por se tratar de uma atividade de subsistência para a comunidade que está inserida, a capacidade de mudar o produto, afim de atender as necessidades do mercado e aumentar os lucros dos artesãos, é uma realidade. Esse cenário é facilmente comprovado quando observamos a quantidade de tipologias apresentadas na área [11], refletindo as adaptações distintas de cada oficina. A mudança de produto apresenta características que permitem sua fácil inserção no ofício, por não requerer investimentos, depende apenas da perícia do artesão, da inserção no mercado, do maior lucro entre outros [26,27].

O processo de produção, nas maioria dos casos, não evidencia mudanças, ele se mantém os mesmo [6,26,27], contudo, adições são possíveis. A implementação no processo, por sua vez, necessita de grandes investimentos, o que permite apenas pequenas mudanças, que beneficiam somente as etapas de extração, beneficiamento, modelagem e pintura, uma vez que mudanças mais significativas seriam a aquisição de fornos elétricos e/ou à gás, reduzindo desta forma o tempo da queima e o resultado final dos objetos.

A adição do processo pintura no Polo Cerâmico, permitiu que os artesãos conseguissem vender com um maior valor agregado. A aquisição de um processo ainda pode gerar a utilização de técnicas, mudando o resultado final e ocasionando lucros distintos. Estes processos de inovação parecem estar relacionados a fatores distintos em cada artesão.

Impactos ambientais

Os impactos ambientais como supressão da vegetação, erosão do solo, emissão de CO_2, efluentes dos processos e de condições de trabalho, são comuns nesse tipo de ofício, contudo por não apresentarem grandes mudanças , pesquisas são escassas. Os resultados encontrados são similares aos da produção ceramista para a construção civil [28].

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Alguns destes impactos são inerentes à prática, ou seja, eles só podem ser mitigados e não evitados, nesse sentido, etapas como a vegetação e a erosão do solo devem ser contornadas com a recuperação da flora, quando possível a recuperação e ou reabilitação da mesma (Decreto Federal 97.632/89). Além destes, outros impactos podem ser evitados, tais como a emissão de CO_2 [29]. A formação também se faz necessário, pois gera conhecimento sobre os perigos do uso de substâncias tóxicas ou químicas na produção artesanal [10].

A organização individual (oficinas) e coletiva (cooperativa e associação), como ocorre dentro do polo cerâmico, favorece o estabelecimento de parcerias, isto é, fornecedores, clientes, público/privado entre outros, que possibilitam uma troca de informações que impactam tanto a parte econômica como ambiental das instituições. Quando pensamos em sustentabilidade ambiental em espaços de produção artesanal, o conceito de preservar o meio ambiente ainda é extremamente ligado às necessidades do mercado e consequentemente, ao lucro [30].

Uma boa aplicabilidade dos recursos naturais apresenta também uma maneira eficaz de atenuar a procura por nova matéria-prima. Esses procedimentos entre outros, são observados em outros polos cerâmicos [10], porém, como descrito, alguns fatores como o nível de sofisticação dos equipamentos e técnicas e a limitação financeira impossibilitam a absorção em comunidades mais carentes, tais como o Polo Cerâmico.

O cenário de tentativa de implementação de metodologias que melhorem a posição ambiental das empresas, pode ser utilizado por artesãos para adicionar os seus produtos aos mercados internacionais (*i.e*. com uma maior responsabilidade ambiental e social). Porém, diferente das grandes empresas, os artesãos apresentam grande limitação de aporte financeiro e de formação. A busca por uma produção "*limpa*" esbarra antes na necessidade da busca de um mercado que gere rendimentos que melhorem sua condição social em contraposição a uma busca por um produto ecologicamente correto.

Neste sentido, é importante entender que um produto artesanal sustentável não se restringe à adequada utilização de recursos, mas a uma busca por firmar os mestres como um grupo social com um estilo de vida adequado, bem como permitir que suas técnicas possam ser preservadas, a fim de que suas tradições sejam materializadas nestes objetos e um mercado constante para sua comercialização venha antes da sustentabilidade ambiental propriamente dita.

Objetivos do Desenvolvimento Sustentável (ODS)

A integração dos objetivos sustentáveis em pequenas comunidades precisa ser integrada à cultura local (*i.e.*, modo de vida) de forma participativa e a longo prazo, para manter as mudanças após sua implementação [31]. Dentre os ODS, as metas 8.9 (dois indicadores) e 11.4 (um indicador) dos objetivos 8. *Trabalho decente e crescimento econômico* e 11. *Cidades e comunidades sustentáveis* são os que mais se enquadram na preservação do patrimônio cultural [32]. Quando abordamos somente essas metas e consequentemente seus indicadores, determinamos que o nível de aplicação é regular para a meta 8.9 e bom para a 11.4.

Além de objetivos intimamente ligados ao patrimônio cultural, o artesanato ainda auxilia em outros aspectos, tal como a inserção da mulher no mercado de trabalho e o empoderando dessa em um contexto social, educacional e econômico [33]. O incentivo à formação profissional e científica também se relacionam em conformidade com os ODS [34]. A busca por aperfeiçoar os artesãos permite uma melhoria na produção, bem como no atendimento e comercialização dos produtos, podendo gerar incentivos à sua inserção no meio científico, por intermédio dos próprios artesãos ou pela possibilidade de instituições público-privadas.

CONSIDERAÇÕES FINAIS

Por mais que o estudo possa ser considerado deficitário, por não abordar a percepção dos artesãos acerca dos processos, recursos e impactos provenientes da prática do artesanato, prosseguimos por considerar que a observação dos pesquisadores em diferentes ocasiões permitiu a análise de forma imparcial.

No que tange aos resultados, consideramos que os mesmos permitiram determinar os meandros da cadeia de produção, os recursos naturais e impactos ambientais e possíveis gaps de atuação para gerar um produto ecologicamente correto. Além disso, este pode atenuar o esforço de pesquisadores e inserir um ponto de partida para pesquisas de intervenção, preservação e divulgação do artesanato, principalmente o ceramista, garantindo a continuidade e transmissão de informações locais.

Os impactos ambientais mais observados são a retirada de vegetação para queima dos fornos, o descarte de resíduos de forma inadequada e desgaste da condição física dos artesãos e daqueles que circundam a área, uma vez que a produção ocorre em ambientes urbanos, que aparentemente é de fácil mitigação, contudo por ser uma atividade para a

maioria dos artesãos de subsistência esses investimentos não são prioridades na alocação dos lucros.

Pesquisas futuras podem buscar variáveis, tais como: sexo, idade, faixa etária, atividades econômicas, turnos de trabalho e etapas de atuação na cadeia produtiva, que influenciam significativamente no processo e nas condições socioambientais do Polo Cerâmico.

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"*Nada pode ser obtido sem uma espécie de sacrifício, esta é a lei da troca equivalente [...] Não fique forte para matar alguém que odeia, mas sim para proteger alguém que ama.*"

Alphonse Elric – Fullmental Alchemist

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6. ARTIGO

Revista a ser publicado: *Annals of Tourism Research*

ANTROPOCENO UMA ERA DE BEM-ESTAR SOCIAL? SARS-COV-2 E SUAS CONSEQUÊNCIAS A COMUNIDADE LOCAIS

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Resumo: As alterações do ser humano promoveram diversas consequências ambientais e, por sua vez, impactam no estilo de vida desse. A pandemia de Sars CoV é uma consequência desse estilo de vida que acabou por impactar as dinâmicas sociais como conhecemos. Diante disso, diversos problemas surgiram no globo, sendo um desses a restrição das pessoas em seus domicílios, impactando no turismo e todas as atividades dependentes dessa atividade. Outrossim, tal cenário expõe como os artesãos e/ou funcionários de um polo ceramista estão passando por essa fase, além dos impactos na atividade e sua adequação às normas da pandemia. Como resultados, tivemos uma perca considerável na renda dos artesãos, proveniente de uma restrição dos mesmos e impossibilidade de produzirem ou venderem seus produtos. Como conclusão, observamos que as atividades turistas sofreram diversos impactos e podem sofrer diversas perdas.
Palavras-chave: Serviço ecossistêmico; Turismo; Perfil Socioeconômico; Polo Cerâmico

Abstract: The changes in the human being provoke several environmental consequences and in turn impact on the lifestyle of the human being. The Sars CoV 2 pandemic is a consequence of this lifestyle that ended up impacting the social dynamics as we know it. Therefore, several problems arose in the globe, one of them was the restriction of people in their homes, impacting tourism and all activities dependent on this activity. Therefore, we verify how the artisans and / or employees of a ceramics pole are going through this phase, what are the impacts on the activity and its adaptation to the standards of the pandemic. As a result, we had a considerable loss in the income of artisans, resulting from their restriction and the inability to produce or sell these products. As conclusions, we observe that tourist activities have suffered several impacts and may suffer several losses.
Keywords: Ecosystem service; Tourism; Socioeconomic Profile; Ceramic Polo

INTRODUÇÃO

As alterações dos ecossistemas naturais são provenientes de intervenções humanas (Albuquerque et al., 2019; McDaniel & Borton, 2002), nesse sentindo, entendemos que essas modificações estão ligadas à visão antropocêntrica que envolve as sociedades modernas atuais (Kortenkamp & Moore, 2001; Washington et al., 2017) e ocorrem nos ecossistemas, estando relacionadas à busca de criar ambientes que gerem um "bem-estar" para a espécie humana (Rau et al., 2019).

A evolução humana poderia ser facilmente contada por contos gregos, tais como o de Ícaro, filho de Dédalo, que não satisfeito com a possibilidade de não estar mais recluso em seu infortúnio, ganhando de seu pai asas de cera e duas indicações absolutas de jamais se aproximar do Sol ou do Mar, esqueceu destas recomendações e chegou perto do Sol, tendo suas asas derretidas e seu consequente falecimento. A espécie humana apresenta os mesmos traços, pois apesar das inadvertidas indicações futuras e já reais, continua a degradar os ecossistemas em busca de um bem-estar completo e utópico.

Já existem evidências de que o surgimento de doenças na sua forma epidêmica está ligado a existência de processos como agricultura e domesticação, aliados às aglomerações populacionais (Diamond, 2002; Wolfe et al., 2007). Acredita-se que 60.3% das doenças infecciosas emergentes são causadas por patógenos zoonóticos (Jones et al., 2008) e apresentam cinco estágios da evolução de um patógeno até a contaminação de humanos (Wolfe et al., 2007).

A pressão antrópica nos últimos séculos ocasionou o aparecimento de doenças zoonóticas que criaram contágios locais em diferentes níveis de letalidade. O SARS-CoV-2, ou simplesmente Covid-19, é um coronavírus de um total de 39 espécies conhecidas (Gorbalenya et al., 2020), sendo responsável pela maior epidemia registrada até o momento no século XXI (Decaro & Lorusso, 2020; Gorbalenya et al., 2020).

A forma como os fatores influenciam as dinâmicas de bem-estar e saúde são conhecidos e se mostram correlação direta entre as variáveis (Braveman & Gottlieb, 2014). Esse cenário foi mais que comprovado em situações pandêmicas como a do Sarcs-Cov-2 ou Covid-19 (Afridi & Block, 2020). Uma das diferenças que envolvem o Covid-19 e outras doenças, foi sua capacidade de se tornar pandêmica e, por esta razão, gerar perdas de recursos para a sociedade humana, variando desde de vidas, desemprego, diminuição de suprimento global, até a disponibilidade de alguns serviços de saúdes, deslocação da população, dentre outros.

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Diante do exposto, podemos entender que diversos mercados foram impactados pela pandemia do Covid-19, e o comércio de produtos artesanais não foi uma exceção, sofrendo numerosos impactos negativos. O artesanato, principalmente em empresas familiares ou grupos associados o qual tem nesse ofício sua principal fonte de renda e sustento (Dantas, 2005; Yang et al., 2018). Diante do exposto, temos os seguintes objetivos: (a) Determinar o perfil socioeconômico dos trabalhadores do polo cerâmico do Poti Velho, Teresina/PI, e como esse foi impactado pelo Covid-19; (b) Identificar o nível de percepção de risco de contaminação e infectados dos trabalhadores pelo Covid-19. H1: A percepção de risco local está relacionada com as medidas de contenção do vírus; H2: As medidas de isolamento social estão relacionadas ao impacto da atividade ceramista; H3: Os fatores socioeconômicos estão relacionados a percepção de risco local.

MATERIAL E MÉTODOS

Área de Trabalho

O presente trabalho foi realizado com os artesãos/funcionários que participam da Cadeia de Produção do Polo Cerâmico do Poti Velho, localizado no município de Teresina, Piauí. A Cadeia de produção envolve tanto o bairro Olarias (5°2'30,55”S. 42°50'17,51”W), onde acontece a extração da argila e o bairro Poti Velho (5°2'11,31"S. 42°49'51.18"W), onde ocorre a produção e comercialização das peças em cerâmica vermelha, em 30 boxes. Ambos locais estão situados na área urbana do município de Teresina, Piauí.

Coleta de Dados

Os dados foram coletados durante o mês de maio de 2019. A seleção dos participantes foi randomizada a partir de uma amostra estratificada de artesãos e/ou funcionários de toda a cadeia produtiva do Polo Cerâmico, com mais de 18 anos, ocasionado em uma mostra representativa da comunidade (Gil, 2008). O tamanho da porção foi calculado pela equação n = N (1 / E02) / N + (1 / E02), onde: n é o número de elementos da amostra; N é o número de elementos da população; e E02 é o erro amostral (9%), dentro de um nível de confiança de 95%.

Nós conduzimos a aplicação de questionários (Albuquerque et al., 2014; Fetterman, 2009) de forma online, utilizando para isso o Google Formes, a fim de identificar os aspectos: (a) socioeconômicos; (b) informações sobre a profissão ceramista; (c) implementações sócio-

políticas envolvendo a Covid-19; (d) Cenário Covid-19 e prática do ofício; (e) Medidas de prevenção de contágio ao Covid-19; (f) Medos após contágio do Covid-19.

Procedimentos éticos legais

Atendendo aos critérios éticos da Resolução Nº 466/12 do Conselho Nacional de Saúde (CNS), o presente estudo foi submetido ao Comitê de Ética e Pesquisa (CEP) da Universidade Federal do Piauí (UFPI), sendo aprovado e consubstanciado sob o número 41964821.1.0000.5214 (CAAE). Os participantes a pesquisa deveriam ser maiores de 18 anos e após explicação do estudo, bem como seus objetivos e procedimentos apresentados no formulário, solicitou-se a sua anuência ("*li e aceito os termos*"), no Termo de Consentimento Livre e Esclarecido (TCLE).

RESULTADOS E DISCUSSÃO

Perfil dos entrevistados

O questionário alcançou um total de 51 participantes, sendo estes 37 (72,55%) mulheres e 14 (27,45%) homens, com idades variando entre 21 e 70 anos (42 ± 11), no mais, ressalta-se que a distribuição dos participantes por escolaridade é variável (Tabela 1), contudo, existe uma predominância de escolarização básica, que aqui entendemos como ensino médio completo ou menor.

	N	*%*
Escolaridade		
Não escolarizado	2	3,90
Ens. Fundamental Incompleto	14	27,45
Ens. Fundamental Completo	4	7,84
Ens. Médio Incompleto	8	45,69
Ens. Médio Completo	21	41,18
Ens. Superior Incompleto	2	3,92
Status civil		
Casado (a)	21	41,18
Outros	5	9,80
Solteiro (a)	18	35,29
União Estável	5	9,80
Viúvo (a)	2	3,92

Tabela 1: Dados de escolaridade e estado civil dos artesãos/funcionários do Polo Cerâmico do Poti Velho, Teresina/PI. N = número; % = porcentagem.

Detectou-se que a distância da residência ao local de trabalho (Polo Cerâmico do Poty Velho – Sede) variou de 0 a 12km (3Km ± 3), desse modo, diferente de outras localizações,

que apresentam uma venda estritamente familiar nas suas residências ou muito próximas a elas, o polo cerâmico por ser um local de venda local destinado a esse tipo de artesanato, fez com que os funcionários se distanciem um pouco do local de trabalho.

A renda percebida com a atividade está em sintonia com as demais atividades produzidas em comunidades ou grupos locais, estando entre R$ 1.045,00 a R$ 3.145,00 ($ 1.045,00 ± R$ 0), o que representa uma variação de 1 a 3 salários mínimos, tendo em vista que os trabalhadores artesãos ou funcionários constituem sua principal renda (Tabela 2). Essas informações, aliadas à quantidade de pessoas que dependem desse salário para a subsistência, que no local estudado está entre 0 a 6 (3 ± 10) indivíduos, que frequentavam o seu local de trabalho de 3 a 7 (6 ± 1) dias por semana.

	N	*%*
Principal Renda		
Sim	41	80,40
Não	10	19,60

Tabela 2: Artesão/Funcionários que vivem exclusivamente da atividade exercida no Polo Cerâmico do Poti Velho, Teresina/PI. N = número; % = porcentagem.

A necessidade de prover sustento a si e à família vai refletir significativamente em como os envolvidos vão se comportar referente às atitudes de prevenção à saúde (Meehan, 2019), de modo que esses fatores não só impactam negativamente o contágio do Covid-19, tendo em vista o impacto positivo da desvantagem econômica no aparecimento de doenças crônicas (Cockerham et al., 2017), fator esse de risco para aqueles que são contaminados pelo Sarcs-Cov-2.

Consequências da Covid

Uma das consequências principais da pandemia para as comunidades mais vulneráveis foi a perca de renda, cenário que se mostrou presente dentro da comunidade estudada (Tabela 3) e variou entre 50% a 100% (100% ± 14%), a qual reflete diretamente na forma ideal como as pessoas respondem ao cenário pandêmico atual (Tabela 3).

	N	***%***
Perdeu renda na pandemia		
Sim	51	100
Não	0	0

Exercendo normalmente		
Sim	2	3.92
Não	40	78.43
Parcialmente	9	17.65
Como vê as medidas de isolamento covid-19 do Governo		
Bom	18	35.29
Ótimo	21	41.18
Regular	12	23.53
Seu isolamento social		
Bom	21	41.18
Ótimo	5	9.80
Péssimo	5	9.80
Regular	19	37.25
Ruim	1	1.96

Tabela 3: Indicações acerca de percepções e atitudes dos Artesão/Funcionários no Polo Cerâmico do Poti Velho, Teresina/PI. N = número; % = porcentagem.

A conjuntura de não estar exercendo suas atividades normalmente, condiz com as condições globais, uma vez que o isolamento foi tido como uma das maiores prevenções do contágio de Covid. Contudo, embora as medidas de isolamento social sejam vistas de forma intermediariamente para ótimas, nem sempre foram cumpridas pela população, sendo este um possível fator para que os participantes não considerem estar se isolando como deveriam (Tabela 3).

Uma percepção que consideramos intrigante foi o tempo que os participantes responderam à seguinte questão: "*Quanto tempo a pandemia iria durar?*", que variou de 1 a 10 meses (4 ± 2) , ou seja, na melhor das hipóteses citadas, a pandemia iria ter fim em junho/julho, e na pior, em março de 2021. Os mesmos resultados foram indicados quando perguntamos "*Quanto tempo para que sua atividade volte ao normal?*" que foi de 1 a 10 meses (3 ± 2).

Conquanto, tenham especulado uma data de retorno às atividades normais, nesse sentido, uma parcela considerável acredita que a forma como seu ofício é praticado deve mudar após a pandemia (Tabela 4). Esse sentimento pode estar aliado ao status de preocupação com a doença que a população dá, sendo essa considerada por grande parte como muito preocupante. Embora muitas pessoas tenham dito não ter medo do contágio, (Tabela 4), resultado esse que não corrobora com a percepção de que a resposta chave da espécie humana a esse tipo de evento seria o medo, ou explicação plausível e a que acreditamos que nunca seremos atingidos por comorbidades (Bavel et al., 2020).

	N	*%*
Status de preocupação da Doença		
Preocupante	3	5.88
Muito Preocupante	48	94.12
Pós Pandemia voltara ao normal		
Não	17	33.33
Sim	34	66.67
Medo de Pegar Covid		
Sim	4	7.84
Não	47	92.16

Tabela 4: Indicações acerca de percepções e atitudes dos Artesão/Funcionários no Polo Cerâmico do Poti Velho, Teresina/PI. N = número; % = porcentagem.

Meditas de prevenção ao Covid-19

Diversas medidas foram indicadas por conselhos, órgãos e comitês políticos, sendo todas ligados à saúde. Quando agrupamos as repostas, notamos que as indicações de uso das medidas de prevenção variaram entre 4 e 9 (7+1), porém, destacamos o uso de máscaras por todos os entrevistados.

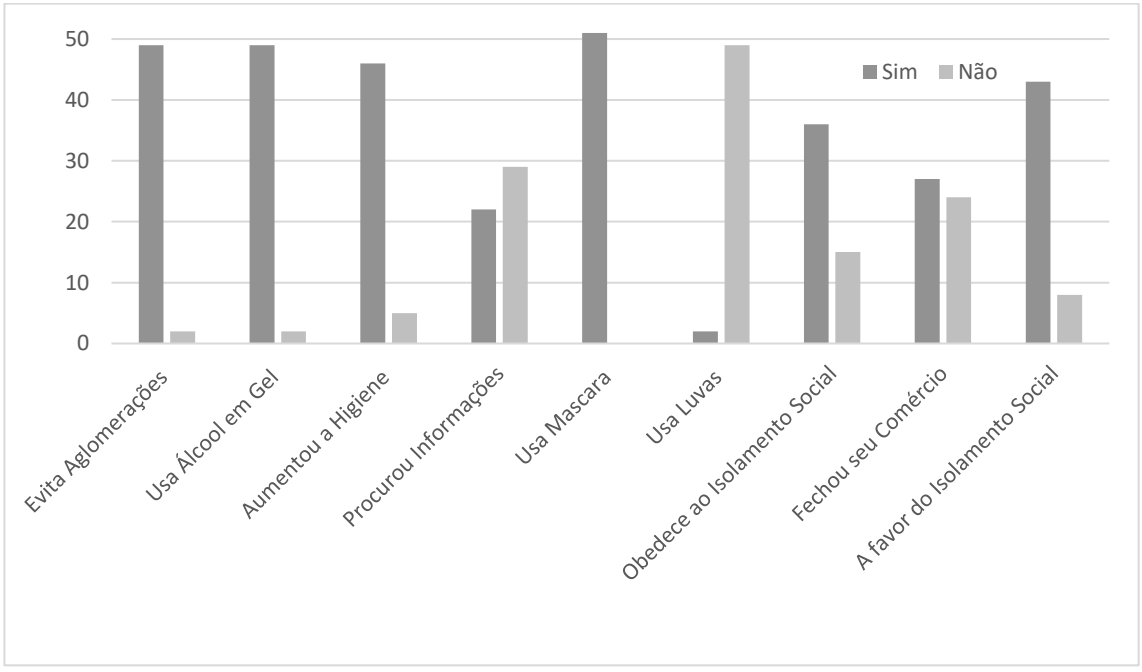

Figura 1: Medidas de proteção/prevenção do contagio de Sars CoV 2 dos Artesão/Funcionários no Polo Cerâmico do Poti Velho, Teresina/PI. N = número; % = porcentagem.

Medidas de mitigação da infecção sejam seguidas, tais como evitar aglomerações, usar álcool em gel, aumentar higiene e máscaras, ademais, a adesão dividida de busca de

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informação pode ser considerada uma atitude negativa, visão baseada no aumento de Fakes News em ambientes virtuais, tais como redes sociais (FRENKEL; ALBA; ZHONG, 2020).

Ao observarmos quais os maiores temores que envolvem o contágio do covid-19 pelos trabalhadores, temos o reportado na Figura 1: óbitos, sequelas, perda de emprego, contágio de familiares, vagas hospitalares e ficar longe de familiares.

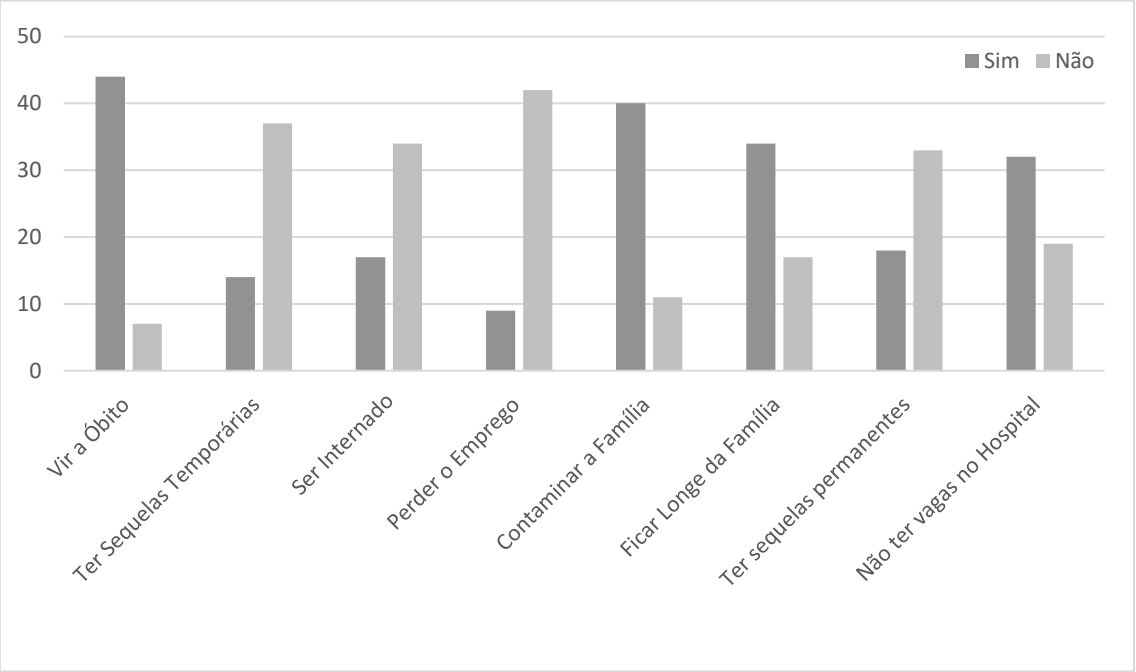

Figura 1: Medos após o contagio de Sars CoV 2 dos Artesão/Funcionários no Polo Cerâmico do Poti Velho, Teresina/PI. N = número; % = porcentagem.

Um fato contratante e que mesmo dizendo não ter medo de adquirir a doença, foi o medo ao óbito e não a sequelas temporárias ou permanentes. Contudo foi o medo de estar longe da família ou contaminá-la, reações que se se mostraram em outras localidades como citada por Bodrud-Doza, et al. (2020).

CONSIDERAÇÕES FINAIS

Diante do observado, concluímos que as implicações do Covid são severas no oficio estudo, e que essas implicações podem a longo curto/longo prazo modificar a dinâmica da atividade, ocasionando a desistência do mesmo. Outro efeito é que populações mais suscetíveis socioeconomicamente falando sofrem mais com os impactos do Sars CoV 2 que outros grupos.

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"*Em algum lugar, alguma coisa incrível está esperando para ser descoberta.*"

Carl Sagan

‘

7. CONCLUSÕES GERAIS

Conseguimos concluir responder a todas nossas hipóteses, que foram construídas. Nossos achados evidenciaram uma elitização na aquisição do artesanato ceramista “serviço ecossistêmico cultural”. Fatores como distribuição de escolaridade não se faz de maneira igualitária proporcionando assim grandes diferenças salariais, que por fim implicam na possibilidade de adquirir produtos culturais.

Observando os meandros da cadeia de produção, os recursos naturais e impactos ambientais e possíveis gaps de atuação para gerar um produto ecologicamente correto. Dentre os impactos ambientais mais observados são a retirada de vegetação para queima dos fornos, o descarte de resíduos de forma inadequada e desgaste da condição física dos artesãos e daqueles que circundam a área, uma vez que a produção ocorre em ambientes urbanos, que aparentemente é de fácil mitigação, contudo por ser uma atividade para a maioria dos artesãos de subsistência esses investimentos não são prioridades na alocação dos lucros.

Concluímos também que as implicações do Covid são severas no oficio estudo, e que essas implicações podem a longo curto/longo prazo modificar a dinâmica da atividade, ocasionando a desistência do mesmo. Outro efeito é que populações mais suscetíveis socioeconomicamente falando sofrem mais com os impactos do Sars CoV 2 que outros grupos.

A pressão indireta que a criação de uma sociedade mais justa e ambientalmente sustentável tem sobre ofícios artesanais, que deve se adequar as necessidades sociais locais e criando momentos de manutenção de comercialização. Por fim, esse trabalho pode atenuar o esforço de pesquisadores inserindo um ponto de partida para pesquisas de intervenção, preservação e divulgação do artesanato, principalmente o ceramista, garantindo a continuidade e transmissão de informações locais.

Apêndice

Retorno a Comunidade

DEVOLUÇÃO A COMUNIDADE

Como devolução para a comunidade uma parte do projeto foi reformulada para concorrer ao Edital de chamamento: "***Experiências Inovadoras para promoção do desenvolvimento local - fomento de plataformas e redes locais de desenvolvimento no Brasil***", sobre tutela do Programa das Nações Unidas para o Desenvolvimento – PNUD, que visava premiar seis experiências que trouxeram soluções a desafios enfrentados no estado do Piauí e que possuem impacto positivo na promoção do desenvolvimento sustentável e para o alcance da Agenda 2030. O valor da premiação seria de R$ 100 mil para cada instituição selecionada.

Ao concorrer utilizando a extensão do projeto denominado "Mulheres do Poti", junto a Cooperativa de Artesanato do Poty Velho – Cooperart-Poty. Acabamos por sem contemplados entre as seis experiências e ajudamos na implementação do valor do prêmio, que foi investido em reformas do local, cursos de aperfeiçoamento, modernização de equipamentos e implementação de métodos com um menor impacto ambiental.

Apêndice

Formulários de Coleta de Dados

PROJETO: Serviços Ecossistêmicos no Comércio de Cerâmica Artesanal: Avaliando os Impactos Ambientais e a Sustentabilidade em Tempos De Pandemia Sars-Cov-2.

Questionário – COVID

INFORMAÇÕES SOCIOECONÔMICAS

1. Número:_____ **2. Idade:** _____

3. Escolaridade: _____ **4. Sexo:** _____

5. Estado Civil:

□ Solteiro(a) □ Casado(a) □ Divorciado(a) □ Viúvo(a)

□ Separado(a) □ União Estável Outro: _____

6. Idade: _____

7. Bairro que Reside: _____

8. Quanto você ganha com o Artesanato? _____

9. Quantas pessoas vivem da sua renda? _____

10. Artesanato é sua Renda Principal? _____

11. Você recebeu ajuda ou benefício durante a Pandemia? Se sim, quais?

_____

_____

12. Você acha que pode voltar a trabalhar? _____

13. Perdeu renda com a Pandemia? _____

14. De 1 a 5 você concorda que o coronavírus seja perigoso? _____

15. De 1 a 5 as medidas de isolamento são boas? _____

16. De 1 a 5 como está seu isolamento social? _____

PROJETO: Serviços Ecossistêmicos no Comércio de Cerâmica Artesanal: Avaliando os Impactos Ambientais e a Sustentabilidade em Tempos De Pandemia Sars-Cov-2.

Questionário – Turistas do Polo Cerâmico do Poty Velho

INFORMAÇÕES SOCIOECONÔMICAS **Loja: _____**

Nº _____ Data: ____/_____/_____

1. Numero: _____

2. Idade: _____

3. Escolaridade:_____

4. Profissão: _____

5. Estado Civil:

☐Solteiro(a) ☐Casado(a)

☐Divorciado(a) ☐Viúvo(a)

☐Separado(a) ☐União Estável

6. Cor/Raça (IBGE):

☐ Branca ☐Parda

☐ Preta ☐Amarela

☐ Indígena **Outros:**_____

7. Sexo:

☐ Masculino ☐ Feminino

Outro:_____

8. Renda Mensal: R$_____

☐ Até R$ 1.045,00 (1 Salário Min.)

☐De R$ 1.046,00 a R$2.090,00

☐De R$ 2.091,00 a R$ 3.135,00

☐De R$ 3.136,00 a R$ 4.180,00

☐De R$ 4.181,00 a R$ 5.225,00

☐ Acima de R$ 5.226,00

9. Número de Pessoas na Família: ___

INFORMAÇÕES TURÍSTICAS

10. Município/Estado: _____

11. Caso seja Teresina, informar Zona:

☐ Norte ☐ Sul ☐ Leste

☐ Sudeste **Outra**: _____

12. Se você é de outro Município ou Estado você se deslocou de:

☐ Avião ☐ Ônibus ☐ Excursão

☐ Automóvel próprio **Outro**: _____

13. Se você é de outro Município ou Estado você se hospeda onde:

☐Familiares ☐Hostel/Albergues

☐Hotéis **Outros:**_____

14. Se você é de outro Município ou Estado você veio à Teresina por qual motivo:

☐ Familiares ☐Saúde

☐ Negócios ☐Turismo

☐ Trabalho **Outros:**_____

15. Como você chega ao Polo Cerâmico?

☐ Automóvel próprio ☐ Excursão

☐ Transporte Público ☐ Moto

☐ Uber/Taxi **Outros:** _____

16.Quantas vezes ao ANO você frequenta o Polo Cerâmico: _____

17.Quanto tempo em minutos você permanece no Polo Cerâmico por visita:

_____

18.Quando você vem consome outros produtos (exemplo: alimentação) além da compra do artesanato:

☐ Sim, Quais:_____ ☐ Não

19.Quando você vem ao Polo Cerâmico, você vem visitar o Polo como um todo ou uma loja específica? Se sim, qual.

_____

20. Quanto você gasta aproximadamente por visita ao Polo Cerâmico: R$ _____

21. Quais os tipos de artesanato você mais gosta. _____

_____

_____

_____

_____

_____

INFORMAÇÕES AMBIENTAIS

22. Você sabe como funciona o processo de fabricação das peças cerâmicas?

☐ Sim ☐ Não

23. Se SIM, descreva o que você sabe. _____

_____

_____

Como aprendeu? _____

24. Você sabe da onde vem a matéria prima que os artesãos usam na produção do artesanato? Se SIM, da onde veio?

Argila:_____ **Madeira:** _____

Como aprendeu? ? _____

25. Você vê aspectos negativos, no meio ambiente ou na sociedade decorrente da produção ceramista local? Se SIM, quais?

_____

_____

26. Você vê aspectos positivos, no meio ambiente ou na sociedade decorrente da produção ceramista local? Se SIM, quais?

_____

_____

_____

_____

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Apêndice

Normas das Revistas

ECOSYSTEM SERVICES

Science, Policy and Practice

AUTHOR INFORMATION PACK

TABLE OF CONTENTS

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DESCRIPTION

Ecosystem Services, associated with the Ecosystem Services Partnership (ESP), is an international, interdisciplinary journal that deals with the science, policy and practice of *Ecosystem Services* defined as the direct and indirect contributions of ecosystems to human wellbeing.

The aims of the journal are:
(1) To improve our understanding of the dynamics, benefits and **social** and **economic** values of **ecosystem services**,
(2) To provide insight in the consequences of **policies** and **management** for ecosystem services with special attention on **sustainability** issues,
(3) To integrate the fragmented knowledge on ecosystem services, synergies and trade-offs, currently found in a wide field of specialist disciplines and journals.(4) To support and promote **a dialogue between science and policy**, providing empirical evidence to decision makers in the field of ecosystem services assessment and valuation and support its mainstreaming into economic and land-use management policies.

Manuscripts should always address ecosystem services and deal with at least one of the following themes:

(a) The link between ecosystem services and social and economic benefits and associated values, including monetary values; i.e. what is the role of ecosystem services and biodiversity in providing and sustaining benefits for humans and how these benefits and values are perceived by the public and policy makers?
(b) The link between ecosystem services and economic, environmental and land use policies and practices; i.e. how is the provision and sustainability of ecosystem services in natural, agricultural and urban systems affected by these policies and what are the trade-offs in service provision, and subsequent benefits and economic values, between different policy schemes?
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urban areas and from local to global scales. However, the research has to be placed adequately, with substance, within the ES framework. Manuscripts dealing with only one aspect of ecosystem services, for example recreation, without putting this single aspect in the broader context of the ES Science, Policy or Practice are not within the scope of this journal.

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INTRODUCTION

Ecosystem Services is an international, interdisciplinary journal that deals with the science, policy and practice of Ecosystem Services in the *following disciplines*: ecology and economics, institutions, planning and decision making, *economic sectors* such as agriculture, forestry and outdoor recreation, and *all types of ecosystems*.

The aims of the journal are:
(1) to improve our understanding of the dynamics, benefits and social and economic values of ecosystem services,
(2) to provide insight in the consequences of policies and management for ecosystem services with special attention to sustainability issues,
(3) to create a scientific interface to policymakers in the field of ecosystem services assessment and practice, and
(4) to integrate the fragmented knowledge about ecosystem services, synergies and trade-offs, currently found in a wide field of specialist disciplines and journals.

Manuscripts should always address ecosystem services and deal with at least one of the following themes:

(a) the link between ecosystem services and social and economic benefits and associated values, including monetary values; i.e. what is the role of ecosystem services in providing and sustaining benefits for humans and how are these benefits and values perceived by public and policy makers?
(b) the link between the levels of ecosystem services and economic, environmental and land use policies and practices; i.e. how is (the sustainability of) ecosystem services in natural, agricultural and urban systems affected by these policies and what are the trade-offs in service provision, and subsequent benefits and economic values, between different policy schemes?
(c) the link between government and business strategies and the sustainability of ecosystem services, i.e. the use of ecosystem services in PES arrangements, biodiversity-offset programs and multiple service land use planning.

Articles may address these topics from different (paradigmatic) perspectives, including basic research, integrated assessment approaches and (ex ante and ex post) policy evaluations. They may be inter-disciplinary or draw from specialized fields within economic, ecological, social and political sciences. Systems addressed may range from natural and semi-natural ecosystems to cultivated systems and urban areas and from local to global scales.

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Research Ethics

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ANNALS OF TOURISM RESEARCH

A Social Sciences Journal

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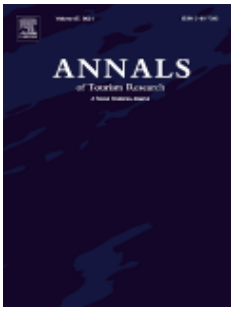
TABLE OF CONTENTS



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Annals of Tourism Research is a **social sciences** journal focusing upon the academic perspectives of **tourism**. While striving for a balance of theory and application,*Annals* is ultimately dedicated to developing theoretical constructs. Its strategies are to invite and encourage offerings from various disciplines; to serve as a forum through which these may interact; and thus to expand frontiers of knowledge in and contribute to the literature on **tourism social science**. In this role,*Annals* both structures and is structured by the research efforts of a multidisciplinary community of scholars.

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INTRODUCTION

Annals of Tourism Research is a social sciences journal focusing on academic perspectives on tourism. While striving for a balance of theory and application, Annals ultimately aims to develop theoretical constructs and new approaches, which advance our understanding of tourism as a field and practice. Submissions must fall with the aims and scope of the journal.

Annals invites and encourages research from various disciplines, to provide a forum through which these different disciplinary perspectives interact, and thus to expand the frontiers of knowledge by contributing to the literature on tourism social science. Papers on anthropological, business, economic, educational, environmental, geographic, historical, political, psychological, philosophical, religious, sociological, *inter alia* aspects of tourism (including conceptual essays, case studies, as well as empirical studies) may be submitted.

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